NUARY 1911 SAILING-MOTOR BOATING CEN

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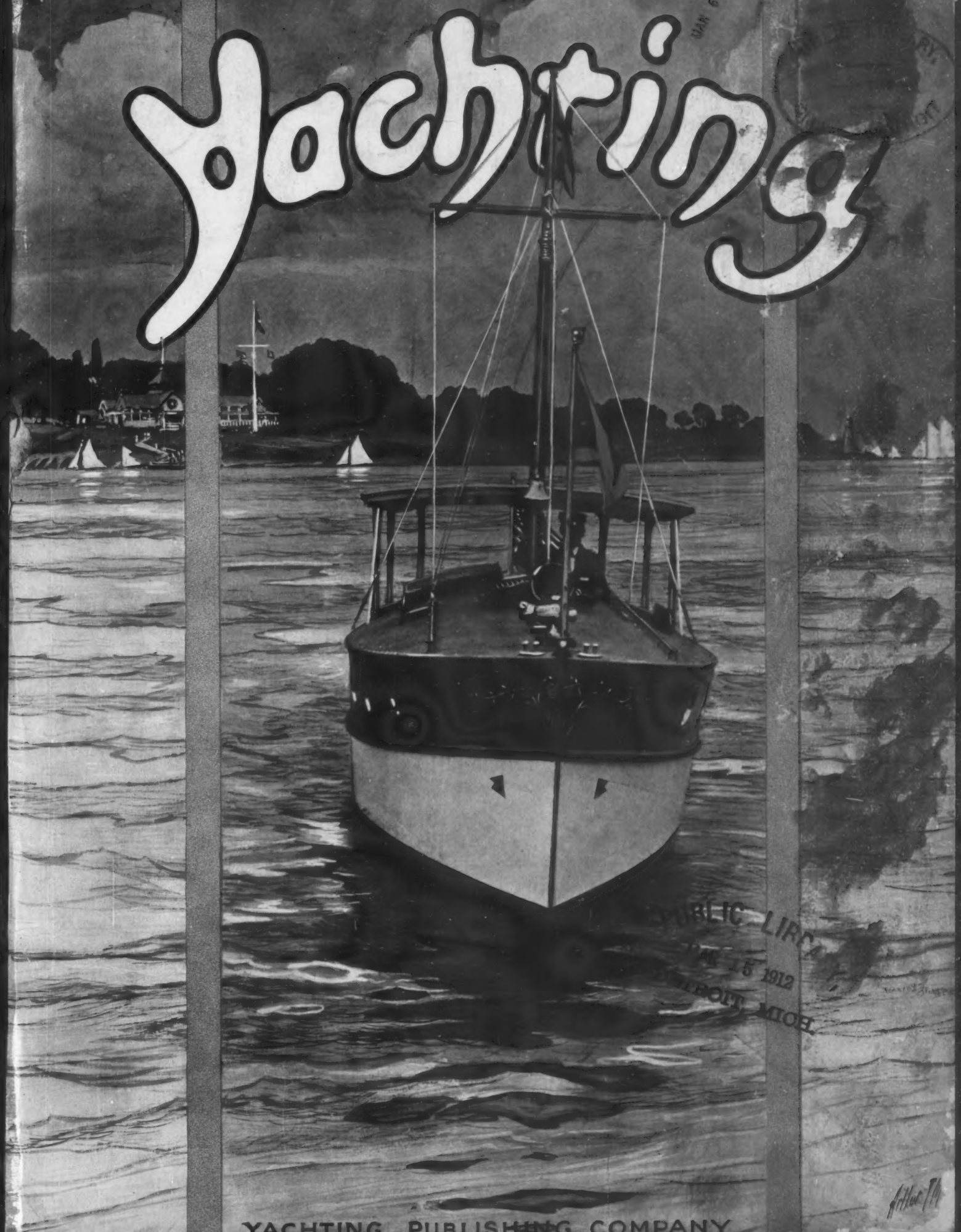

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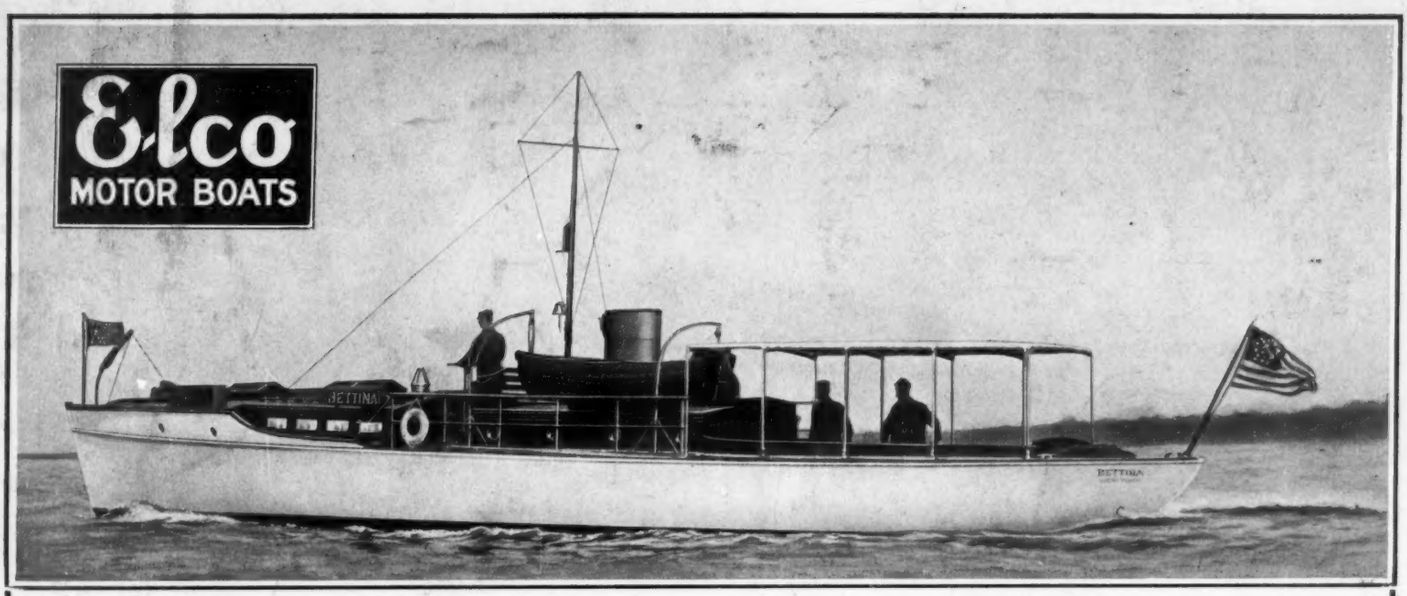

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In the Captain's Cabin

WELL, we have finished another voyage, and with this issue we break out our hook for another year's cruise; but before doing so we want to get you all aft for a little talk, so that we will know where we stand and understand each other better during the passage. It has been some little time since we have had a talk from the cabin, not because we haven't had anything to say, but because things were going along smoothly both forward and aft, and all hands were busy running the ship. On the whole, our 1910 voyage was a good one, and we hope that all the old hands will sign on again for voyage No. 5, in addition to the new hands that we are shipping every day.

After giving the matter much thought, we have laid our plans for making the magazine of even more help to our readers by having more practical stuff during the year that will be of immediate value to motor boat and sailboat owners in helping them meet the problems which they are forced to face as soon as they become the possessor of a craft. In the past we have devoted a great deal of space to covering of racing and cruising events, until we believe we have taken care of this part of the game more fully than any magazine in the field. Now, there are a great many events of importance to a certain locality that are of interest only to those participating in them, or those who witness the race, and while these often make excellent reading, by the time they can be published in a monthly magazine they have lost a great deal of their point. We have come to the conclusion that newspapers or weeklies are logically the places to handle these events, and while we will, of course, see that the boat-owning public gets the very best accounts of all events, such as ocean, international and intersectional races, that are of interest to the great majority of sailors and yachtsmen, we are going to devote some of the space that formerly went to describing local events to practical articles on the use and care of the engine, of the hull, of sails, etc.

We also have in preparation an article on navigation. We ran last year a series of articles on pilot water navigation, or navigation without the use of nautical astronomy; but now we are going a step further and will try and describe, in easily understood form, the use of sextant and chronometer for determining position at sea by meridian altitudes, morning and afternoon sights for longitude, etc. This will not be an abstruse work, but will contain easily understood descriptions of the various formulas which are used, with enough of the theory to make the underlying reasons clear, told in a way that the average amateur sailor can understand.

We shall also have a serial article on the inside route from New York to New Orleans, La., combined with a description of a cruise that was actually taken last spring by a 45-foot auxiliary. This will be illustrated with full charts of the route and information as to the various harbors and waterways used.

We are publishing below two letters, which we have picked out from a number we have recently received with renewals of subscriptions, because it is a pleasure to feel, after twelve months of hard work, that the men before the mast are satisfied and happy. We occasionally get a few growls, and we are even glad to get these, as growling is a sailor's privilege, and when they do it openly you can usually come to an understanding without much trouble and make a willing hand of what might otherwise be a discontented "sojer." So let's hear from you occasionally. We are always glad to get your letters and always have time to answer them.

NEW YORK, December 7, 1910.

THE YACHTING PUBLISHING COMPANY, NEW YORK CITY:

DEAR SIRS—We are signing on again, as usual, and sending the quill driver the usual subscription; but, at the same time, we want it understood that last year's trip had too many fine-weather engravings of the fresh-water class. We want the regular deep-water craft, and with a breeze blowing—something like the picture on the forward binding page of the December number; and, while your artist is about it, he might as well show the buntlines and leech lines—we presume that lower main top sail had them, but the snow storm keeps them from view. We know you have a good stock of this class stowed away in some of your lockers, and so don't be like a mean, rubicund steward serving out the grog in a small dipper, but pass them out same as he does the hardtack—he never weighs this—and oblige

Yours truly,
G. R. BURROUGHS.

DECEMBER 8, 1910.

YACHTING PUBLISHING COMPANY, NEW YORK CITY:

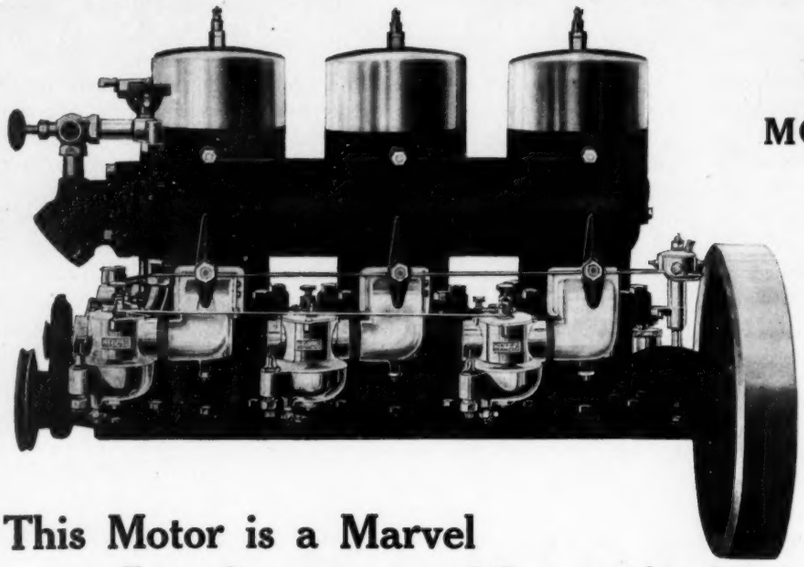
GENTLEMEN—Your letter, saying as how my ship's papers is run out, is to hand. Being as how I can't seem to find no craft what frames up as good as yourn for a deep-sea cruise, I guess ye can tell the skipper to put me down as signed on. You tell him that him and his mates put up the original article on the cruise of 1910, and here's hoping that 1911 will go one better. I ain't voicing no opinion of the fo'c's'le, and I know it ain't etiquette, but I thinks as if the skipper would come for'ard now and then and give us a heart-to-heart talk that that dashdinged brass would look brighter and that them covers come off a deal smarter. Howsomever, I ain't no kicker nor sea-lawyer. I am sending something along what is for the purser.

Respectfully,
J. J. M. FAIRBANK (A. B.).

If your subscription expires with this issue and you have not already renewed, you had better get busy and send the money in to the purser, so that you will not miss the February number. Don't let it go, but do it now.

One more thing we want to talk to you about. Don't forget the advertisers, who have helped to make YACHTING what it is, when it comes to ordering your equipment and supplies for next year. We aim to carry in our advertising columns only those advertisers who can be relied on to fulfill any promise they may make through their advertisements, and in this regard the advertising pages of YACHTING represent the cream of the trade. In return for the support which these advertisers have given us, it is only fair that you, in your turn, should give them the preference wherever possible in buying whatever material you require for next season. It is just as easy when fitting out to purchase from those who talk to you through our pages, and our readers can rest assured that in dealing with these people they will not only get a square deal, but find that the goods purchased are the best that can be bought in the market at the price they are paying.

Don't Order an Engine for that New Cruiser or Racing Boat Until You Look into the Gray Model "T" 1911 Type for from 7 to 108 H. P. Plants



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Write and let us point out the advantages of two and three-unit plants for cruising or working boats. For instance, 108 H. P. plant, consisting of three of our 36 H.P. Gray Motors, will give these advantages among many others: **low first cost, small space occupied, economy of fuel, reliability and extreme efficiency.**

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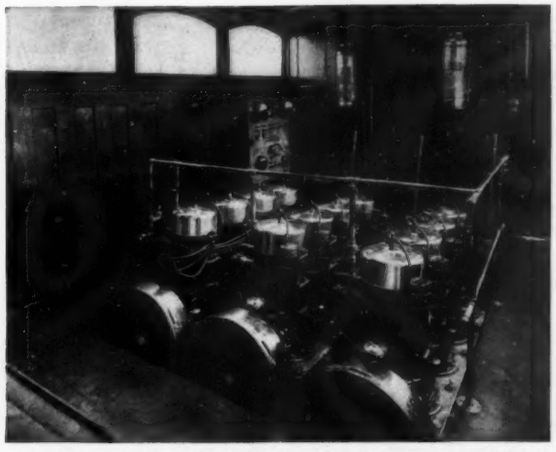

A three-unit Gray plant, including a Gray single-unit electric light plant in a 95-ft. cruiser. Write for full description of this boat.

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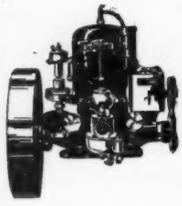

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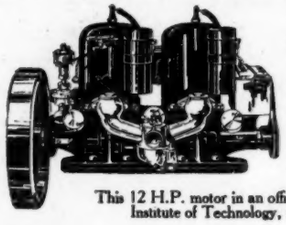

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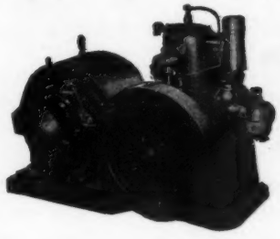

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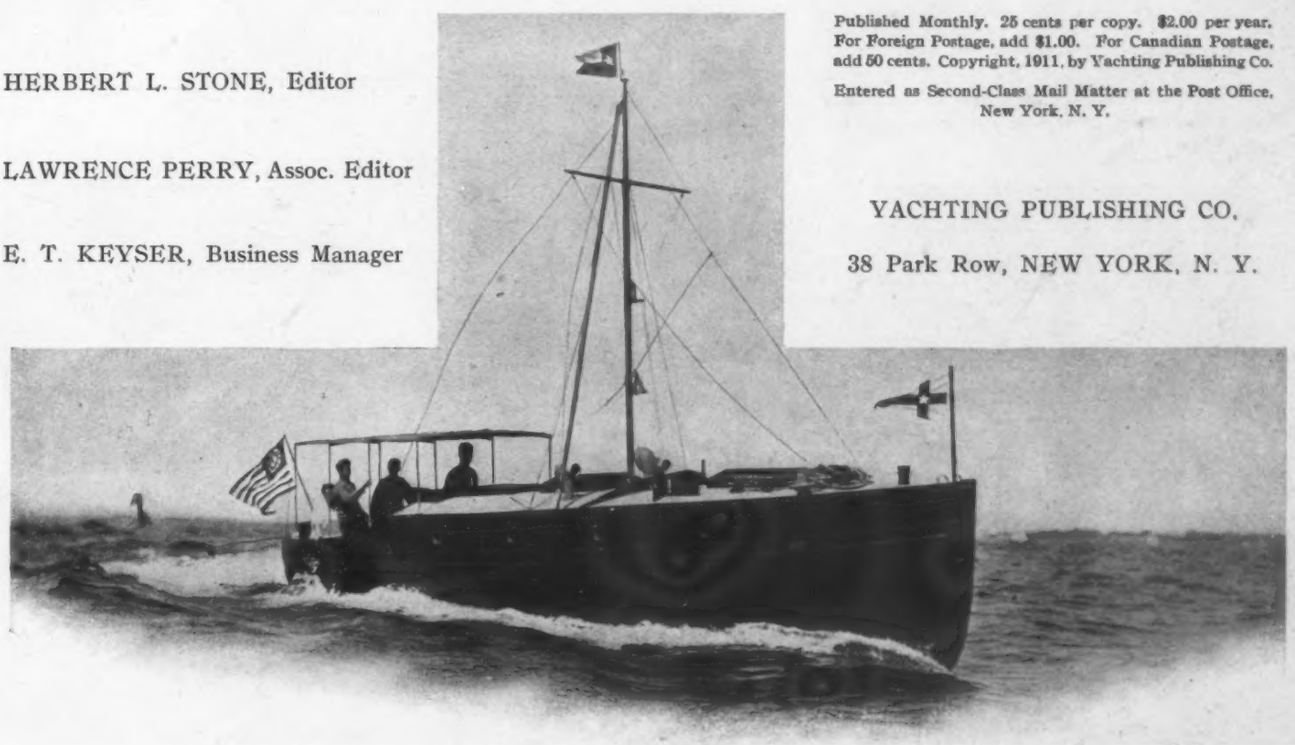


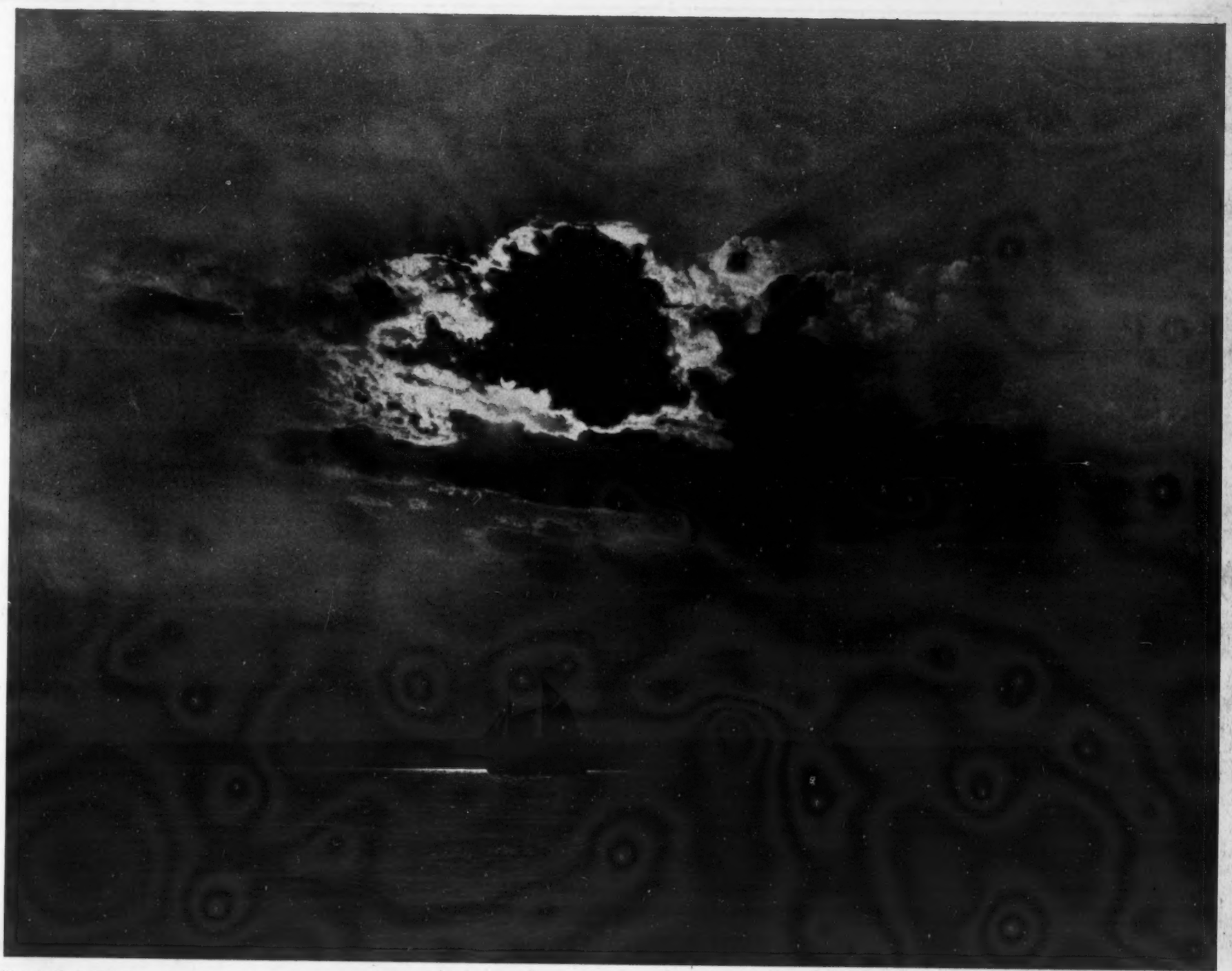


Photo by F. A. Walter.

SUNLIGHT AND SHADOW. THE MOUTH OF THE THAMES AT NEW LONDON.

YACHTING

VOLUME IX. NUMBER 1 January, 1911 25 Cents a Copy $2.00 a Year

FREE FOR A FEW DAYS

By C. S. Street

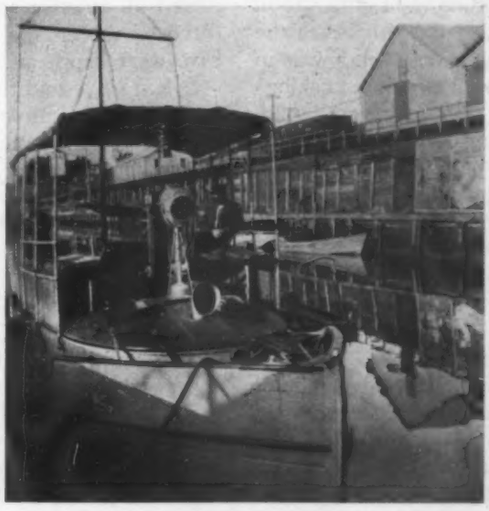
A BIT OF COHANSEY CREEK.

COHANSEY LIGHT.

YES, we were free! But a lot of work was yet to be done before our good ship, the Black Pirate, would be ready to leave the railway and take the Innocent Five down the bay, away from business cares and the snares of our friends. That new stuffing-box and propeller must be placed and the boat-shop people were busy and could do nothing for us until after Decoration Day. The Innocent Five had a motto which has made motor boating a pleasure and has kept the Black Pirate going under very adverse conditions. The motto is "Do the Work Yourself When Others Refuse."

Did we get the work done and the yacht floated? We certainly did, and without the help of the boat-shop crew. It took all day Thursday to fix the propeller, launch the ship, and tidy up, but the boys were old hands at the job and by ten that night the awnings, gasolene, water and grub were aboard and the Black Pirate in commission.

"What's the use lying around here? Let's cut loose and let her go down the river," Jimmy sang out as the yawl was swung up on the davits to keep her from getting under the stern and bumping off the new paint when the tide changed.



BLACK PIRATE AT BRIDGETON, N. J.

We were anchored about a cable's length off the Camden Motor Boat Club, lying at a short cable and ready to act on the first suggestion made. Jimmy's sounded good to us; so, with a pull at the windlass and a throw-over of the flywheel, the Black Pirate poked her old nose into the flood tide and the cruise was on.

Passing the Crescent, their flashlight was shot at us and someone sang out, "Wher're you bound?" "We don't know!" the answer was sent back from the Five as from one man. We didn't know, and, what's more, we didn't care. We were just free, on our old boat, and the hum of the engine was sweet music to five boat-lovers out for fresh air and a stomach full of their own-cooked grub.

We sailed five miles to Gloucester, following the New Jersey shore, but a good lookout was kept on the ferryboats as they came from their slips. "Doc" was at the wheel, and he sent the yacht out of her course several times to take the ferryboats' swells head-on.

"Would she roll much if you took the seas abeam?" asked Frank.

"I'll show you in a minute," was the answer. Just then a double-decker out of Gloucester gave us a blast and went piling up the river. "Doc" sang out, "Hold on!" and the Black Pirate squashed into the trough of the swells and rolled the cabin full of valises, dishes, pots and pans, and a thousand other things, from the table, stove and shelves. Roll? That 50-foot, broad-beamed old hooker just wallered in it! She tried to rip the yawl off the davits and send each of us headlong out of her, and "Doc"—well, he just laughed, and ordered three of the boys to make things shipshape below. The small cruiser following this course should be very careful of the ferryboats and their swell.

Opposite Washington Park, N. J., we picked up the big gas-buoy marking the port side of the channel, and ahead of us the Horse Shoe range lights were flashing; but, feeling sure of the water along the Jersey shore, we headed for Red Bank, the first point after leaving Gloucester. After passing Red Bank, our course took us to Lincoln Park, N. J., which we could see ahead all lighted up. The water is shoal at low tide on this run, but is safe for the small cruiser.

At Lincoln Park the channel runs right up to the beach, and the range lights show the way past Tinicum Island to starboard and Chester Island to port. We decided to make Chester Island and lay back of it until early morning out of the way of steamers and tows; but one can never tell what will change plans made ahead. The Five were in the roof-garden "chinning" and watching the range lights blinking, when, without a slowdown, the engine stopped dead cold. Not one of the Five paid the least attention to the unfaithfulness of the old kicker; they kept right on talking, smoking and gazing at the stars. The yacht drifted and bobbed around contentedly until Frank, in his know-it-all way, sang out: "Why, here is where we always anchor!"

"All right, Frank; suppose you let the hook go and give her plenty of chain," and "Cap" made for the decanter.

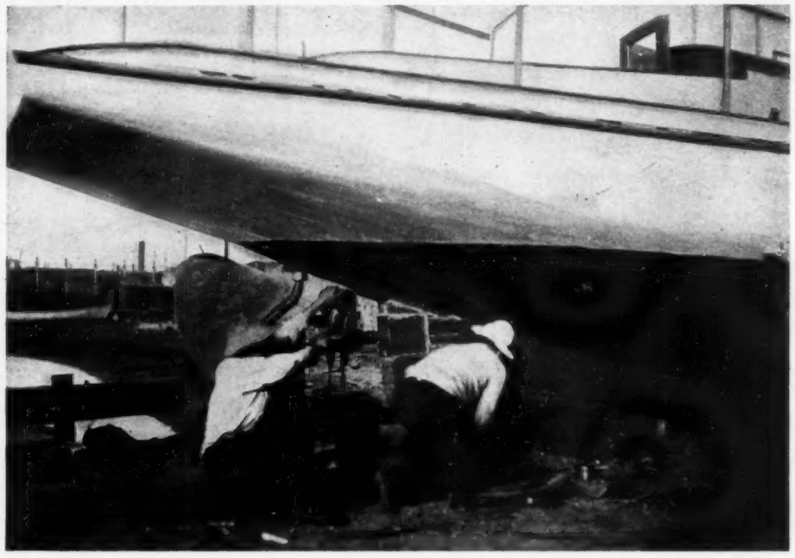
After the anchor was over, we had a guessing match as to what made the engine stop.

"That's easy. The vibration shut off the gasolene-cock." "Cap" made the first guess.

"Maybe she sucked up that bunch of waste I left near the carburetor."

"I don't think so, John. I noticed the ground wire was rather slack when we started, but I forgot to fix it." This was Frank's guess, but "Doc" hit the trouble when he said:

"I bet a 'napcap' twice around that the belt running the magneto has busted. All hands below!"



"DO THE WORK YOURSELF WHEN OTHERS REFUSE."

Result: Busted belt, repairing, and the Four treated "Doc."

It was not necessary to keep an anchor watch, as we lay far enough out of the channel and had a good riding light aloft. John gave her a few more fathoms of chain, pulled the plug from the small boat, as it looked like rain, saw that the extra anchor was in shape to let go at a moment's notice, took in all clothing, cushions and blankets, gave the skylights the proper slants for ventilation, and reported: "Four fathoms under us, 'Cap.'"

A few of these details may be omitted; but, when anchoring, take a sounding and make allowances for the fall of the tide. It has saved the Black Pirate many times from being over on her side when the tide went out. The small cruiser would be more comfortable in back of Chester Island or in Mantau Creek, a mile above, as, where we lay, passing steamers keep a boat on the slam and bang all night.

Before retiring "Doc" jotted down in the log book: "Thursday, May 26. Left anchorage 10:15 p. m. Dropped the hook at Lincoln Park 12:10. Distance run, 12 miles. Course, down the Jersey shore."

We were on our way again Friday morning by 5:30, preparing breakfast and slipping along at an 8-mile clip—so different from a couple of years back, when the Black Pirate was a sailing ship, with many yards of cotton to handle! Then the lightest breeze sent her over on her side and made it impossible to keep the pots and pans on the stove.

John relieved the wheel, and the Four made for the table as we passed Raccoon Creek—a good harbor about 6 miles from Lincoln Park. Across the river lies the city of Chester. Raccoon Creek must be entered from the south. So must another good stopping place for the little power boat—Oldsmann's Creek—3 miles further down.

After breakfast we cleaned ship from the forepeak to as far as we could reach up the mast, Jim and Frank taking charge of the engine and deck for the next four hours. We sailed past Deep Water Point, which looked cool and inviting as we ran close to the sandy beach, where five or six motor boats were anchored and a bunch of boys were having a glorious swim. This spot is a delightful, wooded stopping place, popular with the cruiser, and the 27-mile run from Philadelphia makes it a fine over-Sunday trip. Five miles below we passed the Penn's Neck Dyke, and were surprised to find a small lighthouse built on its end. The tide runs like a mill race around the dyke and shoots half way across the river to Pea Patch Island. Back of the dyke is a fair harbor for the small cruiser. A red light at the end will warn you at night to keep off, and at high tide the great stones are awash, which makes it rather dangerous for all boats.

We shot across to Pea Patch Island and had a look at old Fort Delaware. It is well kept up, and presents a fine view from the gas buoy. Back of the island is a good channel and harbor, and on the Delaware shore is the entrance to the Delaware and Chesapeake Canals.

Our course was changed again for the New Jersey shore, and five miles' more sailing brought us opposite Salem Creek. Then Jimmy set up a howl for Salem—he knew a lot of girls over there! That started "Cap" singing: "Any Little Girl What's a Nice Little Girl." Of course, the boys joined in, and we sang and sang; the ship steered herself; the throb of the engine made a good accompaniment; the Innocent Five were happy and bound for—where?

Salem Cove and the waters around Pea Patch Island are ideal for the cruising motor boat. A whole week could be put in there without a dull moment. The old town of Salem, the creek, and oyster boats on the Jersey side; the Delaware Fort; Pea Patch Island; the locks, and the quaint town of Delaware City on the other shore make this spread of water, some 20 miles in length, a cruiser's paradise.

"Say, 'Cap,' what's the use of going 'way in that cove; why not give me a course to steer for Stoney Point?"

Quick as a flash "Cap" sang out: "South-a-half-east for your course, and the distance from Salem Creek is 10½ miles. After you get down a-ways you will see the great dyke the government has built on Stoney Point Shoals. I understand they are dredging a part of the inside for a harbor of refuge. We have plenty of water on this side, although the ship channel is to the westward and passes close to Reedy Island, the quarantine station."

"That's fine, 'Cap.' How do you remember it all?"

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"A LITTLE SCHOONER LAY AT A DILAPIDATED WHARF."

GREENWICH, ON COHANSEY CREEK.

"Cap" laughed, and replied: "Remember it? I can't forget it. I ran a tugboat up this old ditch for twenty years."

When we reached the dyke the flood tide rushing between it and the shore made the yacht slow up and the steersman watch himself. If good care had not been taken the boat would have gone tacking, first one way and then the other. The dyke makes a fine harbor for a hard nor'wester, but the tide makes it necessary to swing to a long cable and heavy hook. We took a look at the proposed harbor of refuge and judged that there was about 4 feet of water at low tide. The entrance is at the south end of the dyke.

"Cap" and "Doc" took charge of things after passing Mad Horse Creek, a good, deep ditch, fully protected, and one of the many little nooks planned by Providence especially for the cruiser. Four miles further is Stoney Point, and three and a half miles more is Stowe's Creek. Then to Cohansey Creek is four miles. We saw the old Cohansey Lighthouse for a long time before reaching it; but at last we passed the point, sailed south for awhile, and then—well, such a howl went up for a trip to Bridgeton that "Cap" headed for the mouth of the creek, and at last we were bound for somewheres.

THEY GOT OUT A SEXTANT AND SHOT THE SUN.

"I RAN A TUG BOAT ON THIS DITCH FOR TWENTY YEARS."

"Gee! I haven't been to Bridgeton for fifteen years, but I bet I know the channel and we don't get ashore. Send her over to that stake, 'Cap,' and then keep the port bank close aboard for awhile."

One must pass the point and around a meadow-hook before having a clear course up the creek. Many yachtsmen, seeing the light for the first time at night, get opposite to it and then let her go for the creek, consequently fetching up on the point. The lighthouse is a frame structure with the light on top. It shows a white light from the bay, and has a red sector, which covers the flats all the way to Ben Davis Point. If bound up the creek at night from the upper bay, leave the light two points abaft the beam and then run in on the red sector; but keep a good lookout for the meadow banks. Sail through the red rays into the white, and then—anchor, as the creek makes a wriggle like an eel.

The run to Bridgeton was full of interest to the Innocent Five, and their exclamations of delight at the fine views kept them vieing with each other to find expressive phrases. The first oyster houses, with the boats tied alongside, made "Doc" grab the camera. The view was pleasing and had boats in it, so, of course, he snapped it three times. On reaching Greenwich, Jim remembered that the oyster boats take parties from there out to Ship John Light after big weakfish. "Why, I remember the day we caught 'em weighing—" "Oh, yes, we know, Jimmy—a thousand pounds each!" The next turn around a point gave us a view of a tumbled-down wharf with a little schooner alongside, and then we spied ahead a fine sandy beach, with cattle grouped in twos and threes, swishing their old tails, and some of them getting cooled off in the water. The picture was backed by fine trees, and, close by, was an old-fashioned farmhouse.

Going sharply to port to clear another point, we were treated to a quiet picture of boats, decayed bulkheads doing their best to keep the meadow from tumbling into the creek, and in the distance a great woodland. This reach, as they call the bends down

THE OYSTER FLEET AT MAURICE RIVER.

"MISSED STAYS."

there, was protected from the breeze, and the reflection of the picture in the water made it look like two views. The further up the creek we went the more entrancing became its shores. We passed an old fellow listlessly fishing from a bateau, and asked him the distance to Bridgeton. "Oh, 'bout six miles," he said. We made another swing round the corner, and the view that met our eyes will be mentioned many times in our cruising yarns. To starboard was a high, yellow clay bank, topped with a beautiful growth of maple trees, their leaves flashing in the sun's rays as the wind swayed their branches. On the other side of the glassy creek were the spladerdocks and the green meadows spreading away to the pines. It was peaceful and refreshing to our tired eyes; so we named it Valhalla, and took possession of the spot in the name of The Yachtsmen's Club and drank a toast to its beauties.

We chugged away until the six miles the fisherman spoke of seemed twelve. Bridgeton was as far away as ever, we thought; but another twist of the channel brought the town into view, and by sundown the Black Pirate was made fast to the bridge. At low water the cruiser will find it difficult to keep afloat tied up to the wharves or at anchor in the creek. At the bridge there is about six feet at low tide. We made a hasty change of clothing and put for the town and supper. Of course, oysters in every style was the bill of fare. Water, provisions, ice, motor-boat supplies, are handy. We left the sights in town early, and flopped into our bunks just as soon as we reached the ship.

The log read: "Lincoln Park to Cohansey Creek, 50 miles. To Bridgeton, 20 miles. Course—Down the Jersey shore and then, snake-fashion, to Bridgeton. Time from anchorage, 12 hours. 'Doc' remembered the channel and did not get the ship ashore."

The next morning—Saturday—was clear and warm; but we were up early, and by seven o'clock the decks, brass and dishes were cleared up and pipes going. Frank and "Cap" set up two brasses to take out a little knock we had the day before in the engine, set the firing pins down, tested the batteries, and oiled the old kicker thoroughly. This is the first duty always on the Black Pirate before a long run, and it has saved us many worries.

CHART SHOWING THE ROUTE FROM PHILADELPHIA TO THE MAURICE RIVER.

The run down the creek that morning was glorious. The sun was at the proper angle to give the green water reflections of everything on shore, and the shadows along the old wharves and foliage-covered banks looked like deep, green pools. We sailed and admired the views, reversed from the run of the previous day. The tide was with us, and we made good time to the bay, passed Back Creek—five miles further down—and another run of five miles brought us to False Egg Island Point. Two and a half miles from the point is Egg Island Point Light. We passed just before noon, and "Doc" got out the sextant, shot the sun, and called out, "Strike eight bells: it's noon for city folks, but the beginning of another day for sailors!" He worked up the sight and told us that our latitude was out only half a mile. Jimmy thought it a good joke, and accused "Doc" of taking the latitude from the chart, which started a fierce argument, and everybody took a try at the sun with that old "horse's head."

We found Maurice River after sailing five more miles, and noticed that the course was east-northeast from the lighthouse to the mouth of the river. At night there are two red range lights to mark its entrance. If making Maurice River from the south, pick up Maurice River Light, which is fixed red and has a white sector shooting out into the bay. Keep in the red rays until past the lighthouse, when the range lights for the river will be seen plainly. There are two black and one red buoys about three miles off shore to mark the channel to the river, and boats drawing more than five feet should leave them as marked.

We saw many fine oyster schooners as we sailed across Maurice River Cove, but the sight that met our eyes as we came to the oyster shipping port of Bivalve made the boys jump to their feet and shout with joy. There were hundreds of craft made fast in bunches of eight and ten, side by side; sixty or eighty at anchor; forty or more under all manner of sail, and as far as the eye could reach we saw boats. There were boats coming and boats going, their crews of black men laughing and calling, and the sails cracking as the schooners tacked, came to anchor, or shot up to their wharves. The sight was bewildering to the power boat men and fascinating to the sailormen aboard the Black Pirate. A bit of clever manœuvring brought forth exclamations of approval from all hands.

We were in our element, so shut down the old engine and anchored. Frank and Jim made a shore trip for the oysters, and soon returned with a full basket. Did we get busy? Well, the way that bunch of pirates used monkey-wrenches, bits of old iron, chisels and penknives on those Cove oysters proved that they were blood-thirsty old scoundrels. "Doc" found his oyster knife and opened a hundred for a Fortesque fry, which he prepared for our supper.

We visited the fleet and saw how the dredges worked. The boats now use the gas engine to haul the dredges, and more work is done with them and the six men of a crew than twelve could do formerly.

Sunday was spent getting our fill of boats, and, incidentally—oysters. Many of the boats took parties out fishing on the bay, but toward sunset the scene changed. All was commotion. "Up anchor and away for the oyster grounds!" was the order. They kept it up until midnight. A few hundred more boats came from up the river for the early-morning start. We watched the sight until our eyes ached, and one by one the boys took to their bunks.

Monday dawned clear, and the old hook broke out good and muddy after her rest over the Sabbath. We were up early and left a rather deserted oyster village for our long run home of 75 miles. Just before leaving the river we spied a fine oyster sloop spilled clear out on the meadow. She had made a try for the cut-off, which would have saved 3 miles, missed stays, and shot up on the bank. We sailed close enough to her to get a good view, and saw that her crew was digging her out. After reaching the bay we found the vanished fleet. Such a sight! Hundreds of fine oyster vessels were sailing in all directions—tacking, running free, hove-to, trailing dredges, and at anchor. It kept us dodging and calculating distances, and not before we passed Ship John did the fleet diminish. The wind came in hard nor'west, but a strong flood tide carried us home in time to spend the evening at the club, where we told again and again of the best cruise offered to motor boats on the Delaware River and Bay.

The Season of 1910 on San Francisco Bay

By CHARLES ROYCE BARNEY

Photographs by Walter A. Scott, William Connor and the Author

THE season of 1910 on San Francisco Bay has passed in a way to be productive of a feeling of general satisfaction to those interested in the yachting game. Whether the individual concerned has been partial to week-end cruises, with a quiet and cosy anchorage after the day's sail, or the livelier and more exciting phase of setting and getting in struggling canvas during the progress of a hard-fought race, he has had equal ground for self-congratulation upon the fruits of his labor during the months that have passed since opening day.

Both the cruising and speed classes of gasolene boats have received a fair addition to their ranks, more so, in fact, than the windjamming fleet, and all this in an off-year from a financial standpoint.

The Pacific Inter-Club Yacht Association, after much discussion covering many succeeding seasons, has at last officially adopted the displacement rule for racing; but, since few boats in these waters have plans of their hulls, it has been found necessary in most cases to haul out and have the lines taken off by the official measurer. This has interfered with the application of the rule this year, so that most of the past season's contests have taken place either under Seawanhaka measurements or an arbitrary handicap. It is expected, however, that the laying-up season will furnish the desired opportunity for getting hull measurements, so that in 1911 the displacement rule can be applied.

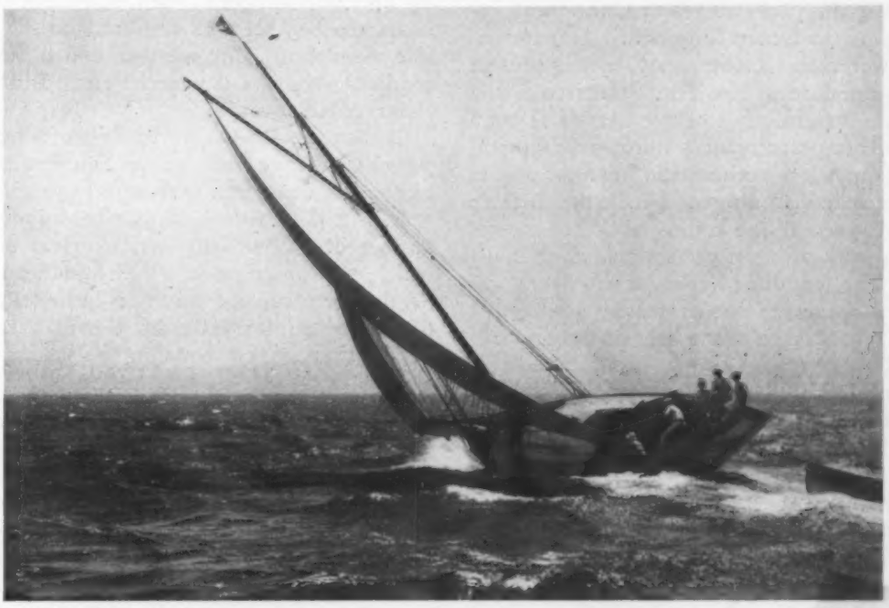


Photo by Walter A. Scott.

FULTON G., THE CORINTHIAN YACHT CLUB 44-FOOTER, WHICH ESTABLISHED HER SUPREMACY IN THAT CLASS LAST SEASON.

The result will be watched with interest, for there are several craft of the scow type, with long overhangs, that have had things very much their own way, and whose supremacy now seems to be threatened. It is believed that the rule will lead here, as it has elsewhere, to the building of new boats on healthier lines, and that the owner of a cruising model will have the satisfaction of carrying a winning number on his mainsail more often than since the so-called freak came into vogue. Of the staunch cabin cruisers we have a goodly fleet, and it will be quite a refreshing change for them to be relieved of giving all kinds of time to the flat boats. There also are a few old-timers still afloat—boats that were built from twenty to twenty-five years ago—which still possess enough speed to crowd the more modern craft when they hook up, boat for boat. These are exceedingly weatherly and afford general comfort under all sailing conditions, and if the application of the new rule will coax them in, it will result in an interesting comparison.

As a season's racing is a large subject to handle within the limited compass of an article of this length, I will endeavor to cover the ground by mentioning briefly the best performers amongst the boats and the more prominent races.

THE 44-FOOT CLASS

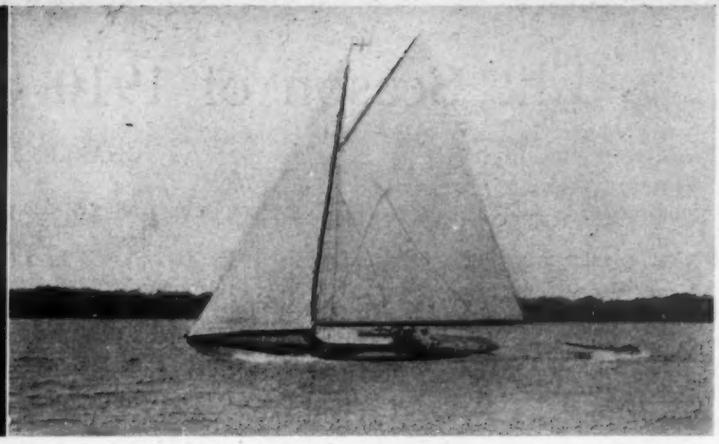
The 44-foot sloop Yankee has not been doing as well this year as usual. Almost immediately following her launching four years ago she assumed supremacy of the class, and, under the guidance of Carl Westerfeld, who sailed her for her owner, D. Abacassis, won almost everything in which she entered. She has also a leg on the Farallon race won in 1908. For the last two seasons her present owner, E. C. Miller, has been sailing her. Yankee's chief rival, up to the time of her removal to Southern waters, was Nixie, owned by Fulton G. Berry, and it was a familiar sight to see these two white-haired boys (for their delight in the sport removed the weight of years from the shoulders of both of them), having it out in the channel. Shortly after the death of Nixie's former owner a handsome sloop, fresh from the ways, lay riding in the waters of the bay and bearing his name—Fulton G. Frank Stone, who has designed and built so successfully for the waters of San Francisco Bay, designed her, and Anderson & Madden built and own her. In an incredibly short time she has rounded into form and twice this season has given Yankee a good beating, the first time winning from her in the Ocean Race to Santa Cruz and then gaining a very decisive victory by over nine minutes in the Pacific Inter-Club Regatta on September 9. It seems as if some of the old man's spirit had passed into this fleet, clean-lined creature, and that death itself could not rob him of a brush with his old rival.

THE 36-FOOT CLASS

Ex-Commodore Frank Stone's sloop Presto, of the Corinthian Yacht Club, has showed the best form in the races held inside San Francisco Bay over the channel course, having gone out of her class (the 36-foot) upon the occasion of her first performance this year, when she beat the big sloop Yankee in the 44-foot class. She also won in her class in the Pacific Inter-Club Regatta very easily, and upon both of the above occasions made the fastest time over the course.

She also won, in her class, the 75-mile ocean race to Santa Cruz, and is easily the best of the 36-foot class in our local waters.

YANKEE, OF THE CORINTHIAN YACT CLUB. A FINE CRUISING AND RACING SLOOP, WHICH, UNTIL THE APPEARANCE OF FULTON G., HAD NO SERIOUS RIVAL IN THE 44-FOOT CLASS.



MONSOON, A WINNER OF OCEAN RACES AND THE MOST IMPROVED BOAT AMONGST THE RACING FLEET SINCE HER IMPORTATION TO LOCAL WATERS.

THE 30-FOOT CLASS

If we look backward over the past two seasons, the most improved boat is F. G. Phillips' 30-footer Monsoon. Transferred from southern California waters in October, 1907, by her present owner, who was then Commodore of the San Francisco Yacht Club, she, of course, had no opportunity to show herself in competition that year. In 1908 her performances were so disappointing that a less determined or a less enthusiastic man than her owner might easily have become discouraged; but he had become satisfied that the boat had speed if she could be altered to suit local conditions, and set to work to effect certain changes, mainly a reduction of sail area. The length of her mast and spars was greatly reduced, and when she came out of winter quarters in 1909 she bore but a slight resemblance to the boat of the previous season, aside from her hull.

Under light weather conditions in the bay she won nearly everything of importance in which she entered or was well up at the finish. Outside, blow high or blow low, she "made good" in everything in which she entered, making the fastest time in the ocean race to Santa Cruz, and winning the special races in Monterey Bay with comparative ease. This year she again won the Santa Cruz race in her class, took the prize for first sloop in the race to arrive, won time prize and a place on the special cup for fastest time, which must be won twice out of three races to be maintained.

Her performance so impressed the regatta committee that, after winning the first of the special races during the week's stay in Monterey Bay, she was asked in the second race to give nine minutes to Yankee, the fastest 44-footer in the fleet. This was more than she could do, but she made the fastest time in the race, nevertheless.

As she lies at her moorings, she does not impress one as a possible winner of ocean races; but that, nevertheless, is her forte, and, despite her lack of comfort as an outside cruising boat, her sportsmanlike owner is always keen to drive her through the dust inside the 30-fathom curve at any time when there is an opportunity of carrying his club's burgee to the front. The short, choppy seas of San Francisco Bay seem to stop her, and she has not done so well inside, except in light weather and a smooth sea. Under these conditions she is a dangerous rival, and has been placed twice in club races this season.

Challenger, W. G. Morrow's 30-footer, which won the Perpetual Challenge Cup for the San Francisco Yacht Club in 1902, has been a consistent performer, though not a frequent one, this year. In the channel she has held undisputed supremacy of the 30-foot class, her only serious rival being the fleet Monsoon, which, now and then on a light-weather day, has beaten her. On September 9 she not only won in her class, but won also the Native Sons' arbitrary handicap over a 12-mile course, and came within 37 seconds of equaling the fastest time made by the Presto.

THE 25-FOOT CLASS

A. F. Rousseau's 25-footer Merry Widow has no trouble in maintaining her supremacy in the 25-foot class, and only an accident to her throat halyards kept her from winning the Perpetual Challenge Cup—the blue ribbon event of the Inter-Club Association. She is scow-bodied, with some reverse curves and long overhangs, and in all likelihood the displacement rule will work rather to her disadvantage; so she had best make hay while the sun shines.

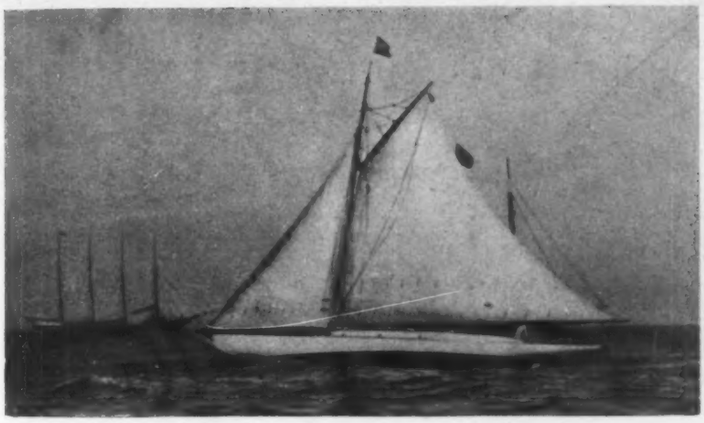
Photo by Walter A. Scott.

AGGIE, OF THE SAN FRANCISCO YACHT CLUB. OVER TWENTY YEARS OLD, SHE CAN STILL SHOW THE WAY TO SOME OF THE MORE MODERN BOATS IN A BREEZE.

THE 20-FOOT CLASS

The sale of the 20-footer Ruby by her owner, Stevens, directly following her victory in the Perpetual Challenge Cup race, deprived that class of a very smart boat. Her owner, assisted by his crew of young Stevenses, all minors, used to rake in all that was worth having in that class, and in 1908-1909 won the ocean race to Santa Cruz. It is hoped that he will soon re-enter the sport with something larger. The present owner of Ruby seems to care little for racing, and the class is left to a very ordinary run of boats from a speed standpoint.

Fleur de Lis, of the same class, made a very good showing by win-



COMMODORE FRANK STONE'S PRESTO, OF THE CORINTHIAN YACHT CLUB.

ning the Shreve Cup, around the lightship in very heavy weather, but, like Monsoon, seems to be partial to ocean rather than bay conditions. In the Pacific Inter-Club Regatta she was beaten by Moonlight over the channel course. Moonlight never has been considered very fast.

THE SCHOONERS

The owners of the fastest boats of the schooner class do not seem to have availed themselves of the opportunity open to them for competition, and, in consequence, there is not much to be said, except that the racing men often pray that they may see the errors of their ways and get into the game. There are five that might figure as having the required amount of speed to make competition interesting under proper conditions. These are: J. V. Coleman's Aggie, the Marion, Story & Brown's Caprice, Hannify's Martha, and Chispa, a syndicate-owned boat. The first and the last-named are very old boats, but sound as a dollar, and when the bay is white with foam, whipped up by the strong westerly trade winds, they are to be reckoned with seriously by the more modern types. I do not remember having seen this season a more beautiful and impressive sight than the old Aggie, with her kites all set and drawing, bowling along with a good, fresh breeze over her quarter, as she appeared in the first race of the San Francisco Yacht Club this year, the white foam curling away from under her clipper bow.

MOLLILOU, THE AEOLIAN YACHT CLUB ENTRY IN THE TRANS-PACIFIC RACE.

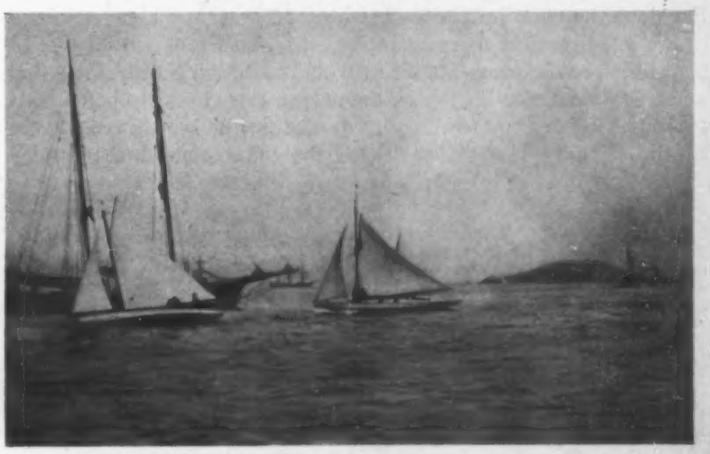
THE RACE FOR THE PERPETUAL CHALLENGE CUP

An unfortunate accident to her throat halyard band cost the Merry Widow the race and probably prevented her from transferring the San Francisco Perpetual Challenge Cup from the Corinthian Yacht Club, where it has been held for six consecutive years, to the Æolian Yacht Club. This race is the blue-ribbon event of the season, as it is open to any Pacific Coast yacht club, and has been regularly contested for since 1895. The Corinthian Yacht Club has had a tight grip upon it, and one that it has been very hard to loosen; yet this year they retained it by a narrow margin, assisted by the mishap just mentioned.

The terms of the deed of gift are very open, with as few restrictive clauses as possible, in order to give to contestants a wide scope in the selection of boats for the event. The principal restriction is that the boats shall be cabin yachts, and that there shall not be more than 10 per cent. difference in their measurements. According to modern slang, to "start something" in this race, the holding club is challenged by the club that proposes to lift the cup, and at the same time the name, dimensions and owner of the challenging boat are given. It is then the duty of the challenged club to name their defender, and the race must be held within sixty days from the date of challenge.

The Merry Widow is in the 25-foot class under the Seawanhaka rule, and has seen three seasons of racing in these waters, having been built by her owner, A. F. Rousseau, after his own plans, in 1906. The Corinthian Yacht Club, in selecting a defender, tried out their two most available boats in a series of races. Both were seasoned craft, one—the Discovery—having twice successfully defended this cup in past years. The other boat—the Ruby—had won enough cups and other trophies to furnish a good part of her ballast, and, in spite of her diminutiveness, has been successfully sailed for a number of years by her owner against much larger boats in ocean races as well as on inland waters. Ordinarily, she measures into the 20-foot class, but for this contest her spinnaker boom was lengthened so as to rate her as a 25-footer. So positive were her friends and admirers of her winning that they freely predicted that she would beat Merry Widow without having to resort to her time allowance, which was 9 minutes and 31 seconds in the course of 12 miles.

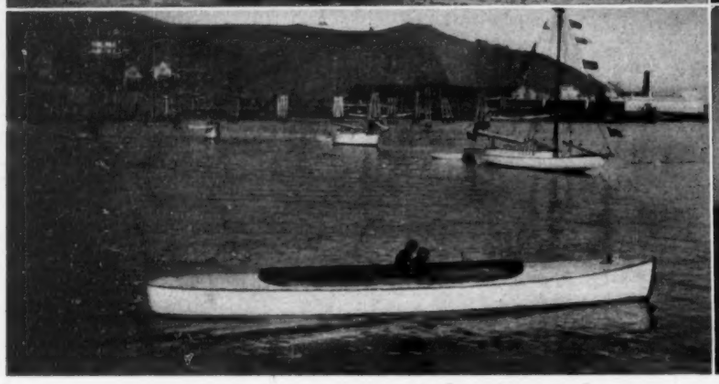
The race was sailed in a fresh breeze, both boats getting away to a good start. Scarcely had they crossed the line before the accident to Merry Widow's throat halyards sent her crew scurrying into the rigging to make repairs, and the time consumed in this way must have cost them not less than three minutes. She was at the windward mark within less than a minute of her rival, however, and gained steadily from then on, so that in the run before the wind she had placed herself a minute and twenty seconds in the lead, which in the reach to the Southampton stakeboat she had increased to two minutes and twenty seconds, and in the beat back gained steadily, so that



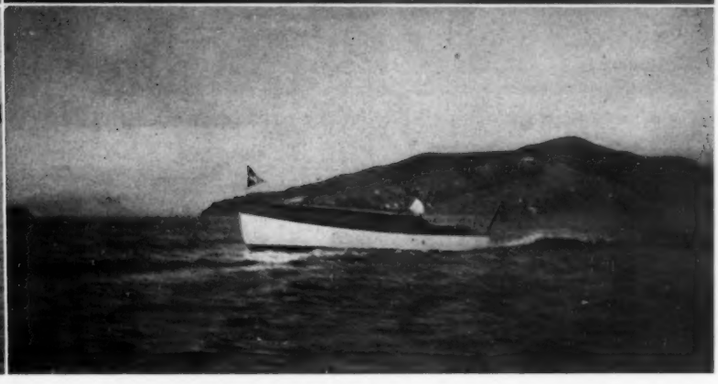
START OF THE PERPETUAL CHALLENGE CUP RACE OF 1910.

POWER CRUISER BONNIE DOON, WILLIAM LETTS OLIVER

JESS, DEFENDER OF THE PERPETUAL CHALLENGE TROPHY.



M. B. WALLACH'S SEMI-SPEED BOAT GLORY.



FLOLLIE, WINNER PERPETUAL CHALLENGE TROPHY FOR POWER BOATS.

when spinnakers were again set she was five minutes and 48 seconds ahead. While the larger boat was footing faster and pointing higher, Stevens, in Ruby, was making use of all his local knowledge and intimate experience with his boat, so that at the finish, in spite of the fact that the challenging boat was 7 minutes and 2 seconds ahead, she wanted a minute and 58 seconds in time allowance of beating her small rival.

The Santa Cruz race was a happy thought on the part of its promoters, and its conditions and prizes are such as to make it very popular. There is a first and second prize in every class; a fine time prize, which must be won twice; a prize for the boat making the fastest time, and a prize for the first sloop to arrive.

Earlier in the article we have described how Monsoon was the bright and particular star of this year's race. Although the event has been managed by the Corinthian Y. C. during the three years in which it has been held, it has not been the fortune of that club to furnish a single winner on fastest time. The schooner Martha, of the San Francisco Y. C., covered the course in almost record time and won time prize in 1908. Monsoon, of the same club, has done the trick for the past two races.

For the first time since its inception a San Francisco Bay yacht started in the big trans-Pacific race, and although Smith's Mollilou was third in a three-boat race, she was so close up as to be entitled to considerable commendation, for she finished within 24 hours of the winning Hawaii. Both of the other contestants carried twice the sail of this little yawl, whose over-all length is but little over 60 feet. Captain L. F. Ward, commodore of the Æolian Y. C., whose colors she carried, sailed her, assisted by a crew of seven, and reported the voyage as the most perfect ocean trip that he ever took. It should be taken into account that Mollilou had been but recently launched, and, until she left San Francisco for the starting line, had not sailed 50 miles.

Among the Power Boats on the Bay

BY HERBERT HAUSER

Three interesting motor boat tournaments were held on the waters of San Francisco Bay during October, which were so successful that they will do much for that rare sport in this section of the country. For speed contests, none of these races can compare to those conducted at either Astoria, on the Columbia River, or those that have been held on Puget Sound; for our local waters, governed as they are by strong tides and heavy winds, are not as conducive to the development of speed as the quiet rivers of the Pacific Northwest or other sections of the United States. The westerly trade winds that sweep across the broad waters of San Francisco Bay during the open months of the boating season make heavy going for the small but fast speed-burners. This has undoubtedly kept many local boating enthusiasts from building speed boats in the past; but the encour-

(Continued on page 64.)

PERPETUAL CHALLENGE RACE FOR POWER BOATS. FOLLIE LEADING JESS ONE-QUARTER MILE FROM FINISH.

The Month in Yachting

SO the schooner Queen has been sold! There were rumors last summer that this was a probability of the near future, and when the fine fore-and-after did not appear on the annual cruise of the New York Yacht Club it was foregone that her owner, as fine a Corinthian as ever threw a yacht into stays, would dispose of the vessel if a good opportunity offered. Last year, for the first time since she was built in 1906, Queen was not in commission the whole season, the Maxwell racing interests being kept alive by the sloop Avenger, which Harry Maxwell sailed, without any adequate returns in the way of success, against Shimna. I recall on one of the days of Larchmont Race Week last year that Mr. Maxwell went to the Polo Grounds, or American League Park, to the baseball game, instead of racing Avenger in one of the regularly scheduled series races. This incident certainly indicated that the usual Maxwellian enthusiasm with regard to the racing of yachts had, to some extent, lost its edge.

Following close upon the announcement of the sale of Queen came the news of the sudden death of her former owner, Mr. J. Rogers Maxwell. The elder Maxwell was one of the most widely known yachtsmen in America, having served long and faithfully as a racing yachtsman, and his passing away will mean a great loss to the yachting community, especially to its older members. It seems as if Fate had decreed that the veteran yachtsman should not see another's burgee fly from the truck of his wonderful schooner. For years past Mr. Maxwell has been one of a group of comparatively few men, members of the New York Yacht Club, who have stood together in maintaining the rich traditions of that organization as a racing body. From the days of the old schooner Shamrock the Maxwell burgee has flown wherever there was a regatta, and it may be some comfort to Mr. Maxwell's many friends to know that his name has already been assured a place in the nautical Hall of Fame with the Staples, the Duncans, the Centers, the Stevens', and all the rest of those who raced on the seas in their prime.

ILLINOIS VALLEY YACHT CLUB, OF PEORIA, ILL., WHICH SO SUCCESSFULLY CONDUCTED THE REGATTAS OF THE WESTERN AND MISSISSIPPI VALLEY POWER BOAT ASSOCIATIONS LAST SEASON.

The purchase of Queen was made by Mr. E. Walter Clark, of the Philadelphia Corinthian Yacht Club, the former owner of the schooner Irolita, well known on the Eastern seaboard. Commodore Clark has proved himself a thorough racing man, participating each year not only in the events of his own organzation, but also in the cruises of the New York Yacht Club and the Eastern Yacht Club, of Marblehead. In purchasing the Queen, he sold his former schooner, Irolita, to the Maxwells, and, up to the time of Mr. Maxwell's death, it was taken for granted that this smaller schooner would be seen flying the Maxwell private signal this season. What effect Mr. Maxwell's death will have on this we do not yet know.

Commodore Clark will have his new schooner in commission early in the season, and will give Westward, if she leaves England, and Elmina and the new Plant schooner plenty of racing. Her name will be changed to Irolita, a name which Commodore Clark has favored in the cases of several racing yachts he has owned.

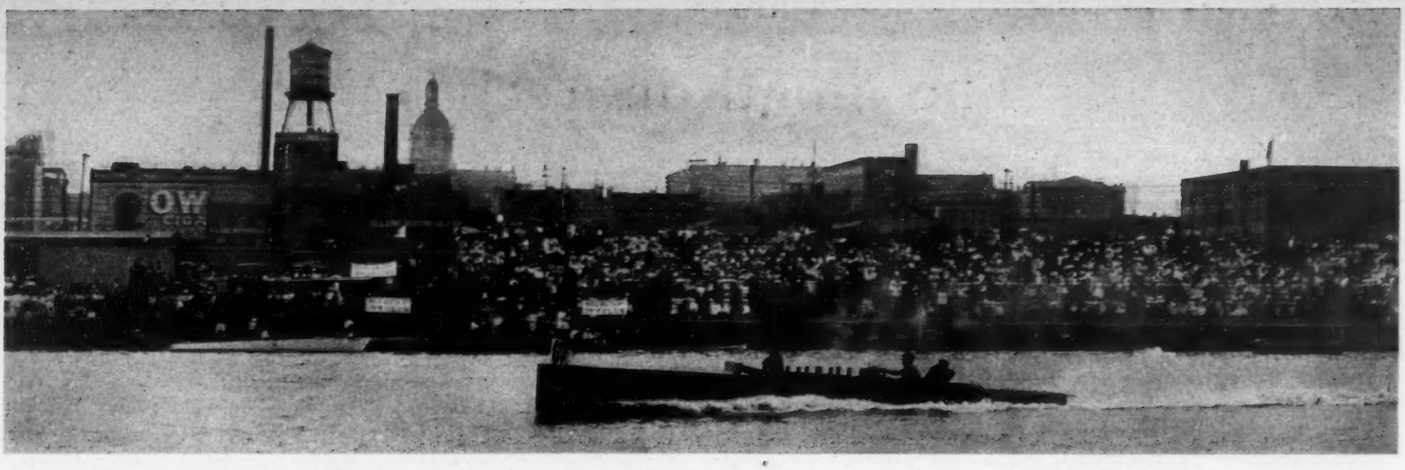
It is a sure thing that the new Irolita will do more for the name than the sloop Irolita, which the Herreshoffs built for him in the same year, curiously enough, that they built Queen. Whether all the genius was revealed in the schooner, or whether, as was stated, there was a misunderstanding as to whether Irolita should be a racing or cruising sloop, or a mixture of both, the fact remains that she was a log on the seas and the slowest sloop the Herreshoffs ever turned out. Commodore Clark later had her board removed and she was converted into a schooner, and, as such, she gave good service, and is still warranted good, sound and seaworthy for many years to come.

Queen, which, take her all in all, was the greatest schooner this country ever saw until Westward began capturing laurels last season (Queen may be able to beat Westward, at that), was designed and built in 1906 for the express purpose of winning the King's Cup, the trophy which King Edward VII donated as a perpetual prize in that year. But it happened that Henry J. Gielow also produced a sloop that year which, while not designed especially for the King's Cup, was out for all the mugs that could be captured. Effort, the Gielow sloop, captured a bunch of them, among them the regal trophy, nosing out Queen on time allowance by a margin of 9 seconds.

However, Queen had the honor of winning the prize in 1907. Give this boat a smooth sea and a light wind, she is unbeatable; give her a 15-knot wind, and you might as well try to catch Mauretania; but give her from 20 to 30 knots, outside of headlands, and then—well, that is the time to place your faith in Cary Smith's Elmina.

The new motor boat club which has been talked of in Troy for some time past has at length become a reality. Sixty members signed the charter at the first meeting, in November, and qualified for membership by paying six months' dues. There will be two buildings—one, of two stories, for the motor boat men, and another, of one story, for the convenience of the members of the club who own canoes. The club will, in fact, be a joint motor boat and canoe club. I do not know whether men interested in sports so different have ever before merged their interests in one organization, but there seems no reason why the innovation should not be successful. If present plans go through, the new club will secure one of the finest small harbors on the river front, an acre of shore line extending nearly a city block.

It seems almost yesterday that Jubilee, Pilgrim, Colonia and

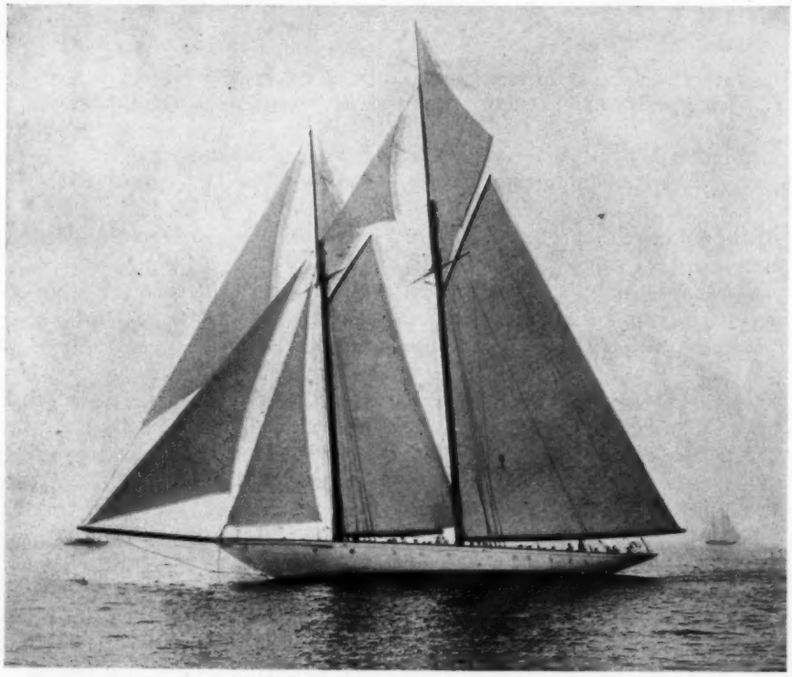


THE NEW HOOSIER BOY PASSING THE CROWDED GRANDSTAND AT PEORIA IN THE MISSISSIPPI VALLEY REGATTA

Vigilant were racing for the honor of defending the America's Cup. Yet it was way back in 1893, come to think. The beautiful hull of the Vigilant has but recently succumbed to the heavy hammers of the junk men, while Pilgrim, converted into a steam yacht, is now a gasolene supply boat at Marblehead. Colonia is the 90-foot schooner Corona, and as for Jubilee—well, she is on her way to the junk heap. They are certainly dying in bunches these days, the famous yachts of the past. Jubilee represented the last effort of Gen. Charles J. Paine, of Boston, to maintain his reputation as a defender of our greatest yachting trophy. Gen. Paine and his son designed her, and she was built at the Lawleys'. She was a fin-keel boat, but also had a centerboard forward for the use in windward work. Capt. John Barr, who sailed Thistle against Volunteer, was placed in command, but his skill could not offset the genius of the Wizard of Bristol. The wiseacres, though, attributed Jubilee's lack of success to her gear aloft, which was too light for the use for which it was intended. After Vigilant was selected as the cup defender Jubilee was put out of commission; in 1895, when Defender, Vigilant and Volunteer were racing, Jubilee joined in the contests, but her success was not marked. At the close of the annual cruise of the New York Yacht Club Jubilee was taken to Boston, where she remained idle until 1905, when she was towed to Marblehead, and has been there since.

There are rumors that Westward may not leave England, after all. The fact that a new Fife schooner has been ordered to meet his craft, it is said, has appealed strongly to Mr. Cochran's sporting spirit, and, while no definite announcement has been made, those in the "know" will not be surprised when they learn that Charles Barr has received orders countermanding his previous orders to put Westward in trim to cross the Atlantic early in April. If this is the case, what will Com. Plant do? Will he, too, send his schooner to England, or will he be content to race in American waters against Queen, or rather Irolita, as her new name will be, and Elmina? The English attraction is likely to be very potent, I imagine; certainly the New York Yacht Club, which is supposed to stand for American yachting, has done nothing in recent years to rival in point of interest the English cutter racing of the past few seasons and the schooner racing of last year. If Westward remains on the other side and races against the new British fore-and-after, it is certain that the contests will rival the interest which has always been manifested in America's Cup races; and it is more than likely that out of these schooner regattas would grow an international event destined seriously to challenge the popularity of the historic but apparently *jejune* event for sloops which the New York Yacht Club is permitting to pass out of memory. There is also a rumor from the other side that Westward is up for sale, but no confirmation has yet come of it.

More than once admiration has compelled me to call attention to the Illinois Valley Yacht Club, of Peoria, than which no club has done more in the way of developing interest in motor boat racing. They are planning for next season with a hooray that seems calculated to sweep everything before it. The present project is a regatta of a size and importance such as to cause racing men to regard it as equally desirable a meet as those to be held at Dubuque and Detroit. The Ivy race, it is proposed, shall be held either before or after the meets in the two other cities, and thus round out the Western circuit. The intention is to raise a purse of $1,500, of which $500 or $750 are to be set aside as prizes for boats of the 40-foot class; $300 to $500 for the 20-foot class, and $150 for the 26 and 32-foot classes. It will be an out-and-out racing regatta for fast boats. It is beyond doubt that nowhere in the country will there be races better worth seeing or conducted with greater efficiency, and one of the best-known motor boat racing men in the United States is under consideration as manager of the events. I should like to see the Ivy Club in action, and some day hope I may; they have the right angle as to sport—energy and enthusiasm.

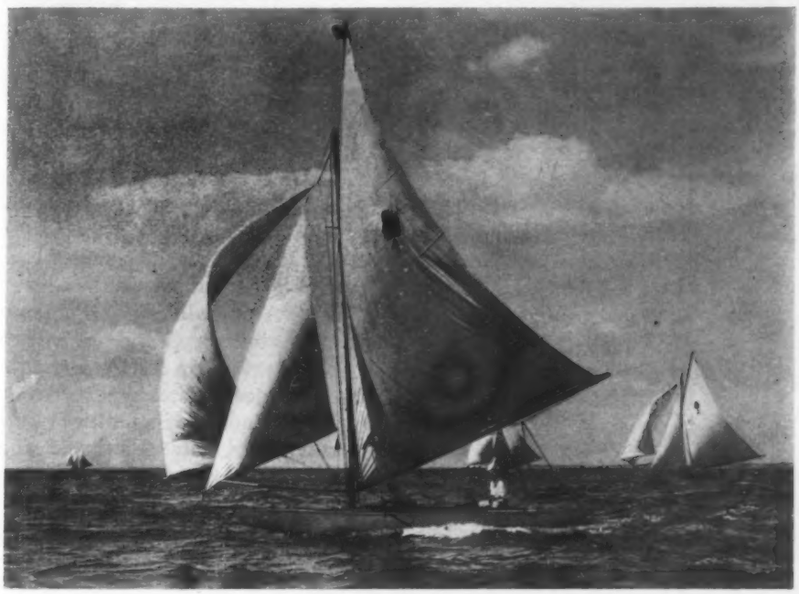


SCHOONER QUEEN, WHICH HAS RECENTLY BEEN SOLD TO COMMODORE E. WALTER CLARK, OF PHILADELPHIA.

The Inter-State Team Match For 18-Footers

By T. R. GOODWIN

OF all the racing classes on the Atlantic seaboard which have made their mark in the annals of American yachting but three classes have endured the test of time. Of these, two classes—the Newport and New York 30-footers—were one-design classes, permitting no latitude in build or design or improvement of form, and have endured solely because their ownership has been more or less of a close corporation and the boats have not passed outside the group of men who built them, except in a few instances.



THE RUN TO THE OUTER MARK IN THE SECOND TEAM RACE. BAT, ONE OF THE RHODE ISLAND BOATS, IN THE FOREGROUND.

The other class is the 18-foot knockabout. A restricted class, originating in Massachusetts Bay in 1900, it has lived triumphant through eleven successive racing seasons, its rules changing but slightly and only in minor detail; and to-day the boats are racing as keenly as ever on Massachusetts Bay, Narragansett Bay, Lake Erie, New Orleans and on Long Island Sound. The best efforts of the best small-boat designers of the East have gone into the class, and yet the racing has always been, to a large extent, the question of handling, and no boat has proved her superiority so conclusively as to discourage the owners of her competitors. A rather significant fact is that some of the so-called outclassed boats of a few years past, having changed hands, are now repeatedly defeating craft that were formerly rated superior. Neither have the newer productions shown more than average ability or superiority in some particular condition of wind and weather.

Bound by a set of ironclad scantling restrictions, which require a sturdy, well-built craft; the sail area limited to 450 square ft.; an over-all and waterline length of 31 ft. and 18 ft., respectively; a required displacement of 4,000 pounds, and a number of other important freak-eliminating requirements, these comparatively inexpensive craft have proved their ability in every kind of going and stood the test of time so well that all of the original boats are afloat and in good condition to-day.

Narragansett Bay adopted the 18-footer officially in the fall of 1908, a local association being formed to further its interests, and the Massachusetts Bay restrictions being adopted practically intact. Several new and fast craft were seen in Rhode Island waters in 1910, including a boat designed and built by Jefferson Borden, of Fall River.

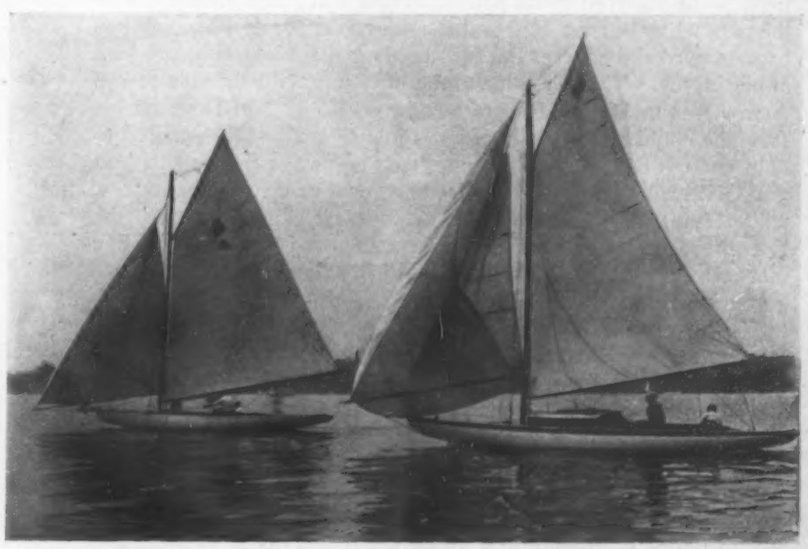
The Massachusetts and Rhode Island Associations, working in harmony, arranged a series of races off Marblehead during the midsummer series of the Corinthian Y. C., three boats from each association constituting the respective teams. The team championship and individual honors were computed on the percentage system, and a handsome trophy was offered for the boat making the highest score.

Rhode Island, after a series of hard-fought trials, selected Hugi, the 1909 champion, Bat and Arrow II, two famous Boardman productions, all three being of the vintage of 1904. Hugi was owned by Porter Fearey and sailed by the writer, while Bat and Arrow were sailed by their owners, Harvey J. Flint and Barton C. Hirst, Jr.

Massachusetts selected Dorchen II, a year-old Small Bros. craft, whose victory in the East vs. West match proved her merit; Aurora, a 1905 boat, winner of two championships, and Kittiwake V, built in 1904, the former designed by Small Bros., built and sailed by the Pigeon brothers, the latter designed by Shiverick and sailed by her owner, Mr. Whittemore.

The races were sailed during the mornings of the Mid-Summer Week, leaving all the competitors the privilege of contesting in the open races in the afternoon for the coveted Mid-Summer Series Trophy.

The first race was sailed Wednesday, August 3, off the Corinthian Y. C., over an inside course from the harbor mouth to a buoy near the Manchester shore, thence to a mark off Half-Way Rocks and finishing off the club. There was not a ripple on the water when the gun started them away, and, had it not been for the friendly aid of a launch, several of the boats could not have reached the line. Bat, Kittiwake and Dorchen had rather the best of a lifeless start, and the fleet drifted away on a close reach to the first buoy. Bat, with a suit of silk sails, drifted away rapidly, but fell off badly to leeward of the course. The others trailed along toward the buoy in the



FINISH OF THE FIRST RACE BETWEEN BAT AND KITTIWAKE V.

HUGI, OF THE RHODE ISLAND TEAM.

following order: Kittiwake, Dorchen, Hugi, Arrow and Aurora. Bat reached the Manchester shore well ahead of the fleet, but considerably to leeward of the turn. She picked up a little draft of air off the shore and stood to the mark, reaching there just as Kittiwake and Dorchen made their turn, but with a way on that carried her through the lee of both boats. On the broad reach to Half-Way Rocks the three leaders maintained their positions, while Arrow passed Hugi and went into fourth place. Once around the mark and headed for home, Kittiwake covered Bat nicely, although the latter had her spinnaker drawing in the remarkable time of 7 seconds from the moment of turning. Flint, seeing his chance to help out his team-mates, carried Kittiwake far to the north of the course, giving both Arrow and Hugi a chance to go after the Dorchen. Mr. Loring, who was at Dorchen's stick, had badly injured his leg in getting into the boat, but pluckily held to his post, although at a considerable disadvantage, as he suffered great pain. Arrow and Hugi slowly closed the gap, while Bat and Kittiwake, after a number of jibes, worked back toward the course, Bat still holding the Massachusetts boat at her mercy. The five came to the line on practically even terms. Arrow was making a desperate endeavor to blanket Dorchen before she could reach the line, but Finlay's craft still managed to hold enough of her wind clear to keep her way; Bat was tied up with Kittiwake and dared not let her go; Aurora was far astern, while Hugi, with a clear wind, was not close enough to reach the line ahead of the leaders. Within a hundred yards of the line there was a remarkable shuffle. Hugi jibed and called for Bat to go ahead, herself taking Kittiwake off Bat's hands. Flint, quick to see his chance, jibed and shot clear of the bunch, squeezing over half a length ahead of Dorchen, which boat had but a few feet the better of Arrow. Hugi and Kittiwake slipped over almost together, the Massachusetts boat earning the decision, while Aurora brought up the rear. This gave Narragansett Bay a lead of 16 points for the first race.

The next day saw a trifle more wind from the southeast. The course gave a close fetch out of the harbor to Archer's Rock; a beat to the S. E. Breakers; a broad reach to Pigs Rock Bell, and another reach home. The fleet went away to a close start and turned the Archer's buoy all in a bunch. Young Hendrie was at the stick on Dorchen, as Loring had been sent to the hospital, and, naturally, the youthful skipper was unfamiliar with his charge. After rounding, the fleet fell into the doldrums and rolled helplessly for several minutes in the long swells. The breeze came in lazily from the southeast, and Kittiwake felt it first. She covered a long distance before the rest of the boats worked into the slant, Hugi getting it next and "hiking" after the flying leader. Arrow was the next favored, followed by Aurora, Bat and Dorchen. The boats paraded around the course in that order, the only incident of the race being a remarkable fight between Bat and Aurora, and, while they were very close at the finish, Aurora fought the other off until the line was crossed. The results gave Rhode Island a further gain of 16 points, or a net lead of 32 points in the series.

Friday morning saw a fresh breeze from the northwest. The course was a run to southeast mark, a beat to Pigs Rock and a reach home. The fleet ran very evenly to the leeward turn, Dorchen, Aurora, Arrow, Bat, Kittiwake and Hugi being the order in which they hauled on the wind. Hugi was so badly backwinded that she split from the bunch and made a long slant backward toward shore, while the leaders fought out a pretty race in short hitches. Dorchen was not to be denied, working her way to the van and never being headed. Arrow did some excellent work and seemed sure of second place, but she carried away her weather shroud on the reach, and, on hauling up for the short bit of windward work into the harbor entrance, was obliged to lower her mainsail until she could fetch the line, during which time Aurora passed her and secured second place. Bat, Kittiwake and Hugi reached for home in exactly that order, until Bat, seeing a chance to better her team's position, eased off her sheet and waited for the Massachusetts boat. Kittiwake must have seen that there was trouble ahead, as Bat doused her spinnaker and worked over into her course; but, either through over-confidence or a belief in her ability to run by Bat, Kittiwake held to her spinnaker. Bat carried her by a sharp luff well to weather of the course, but a hard puff caught the unwieldy light sail, dragging Kittiwake's head to leeward, and she fouled with the Rhode Island boat. Hugi had been hustling for the buoy all this time, and the three reached it almost together, Hugi slightly astern of Kittiwake, with Bat fol-

ARROW II, THE THIRD BOAT IN THE RHODE ISLAND TEAM.

lowing. Hauling on the wind for the beat into the harbor, Hugi drove wide through Kittiwake's lee, hauled sharp across her bow and nicely covered her, driving her off to leeward enough to permit Bat to cross ahead and giving the Rhode Island boats fourth and fifth places. Through Arrow's accident the Rhode Island team lost not only their lead, but the Massachusetts boats stood ahead by 16 points. Bat protested Kittiwake for the foul, which, had it been sustained, would have evened the teams up, but, as she had not set a protest flag, it was not considered.

The last race was for blood. A sharp nor'wester was blowing, and, while all except Kittiwake and Hugi hung to the whole mainsail, these each tucked in a reef. Hugi could outcarry any boat in the bunch, and her mistake cost her dearly, for there was not nearly as much wind outside as in the harbor, and she did not shake out until too late.

The same course was sailed as on the preceding day. Arrow got a poor start, and was well astern of the bunch, while Hugi soon worked her way into the van, and as both Aurora and Kittiwake were hanging to Bat, and Dorchen to Arrow, she continued to gain, and looked to be making a runaway. Suddenly Bat shot into the wind and lowered her sail, her rudder having gone clean off. The Massachusetts boats, seeing her out of the race, combined to catch Hugi, and came down the wind boom to boom, effectually cutting off the Rhode Island boat's chance. Half way to the mark they overtook her, but in some pretty luffing she berthed herself to weather of Kittiwake and Dorchen, and drove off Aurora in a sharp luff that split the Boston craft's spinnaker and dropped her astern. The manœuvre should have given Hugi the inside berth at the mark and the weather gauge on the fleet, but the hard northwest wind had shifted the mark and all three of the leaders stood much too

THE MASSACHUSETTS TEAM. FROM TOP TO BOTTOM KITTIWAKE V DORCHEN II AND AURORA.

far to the east. When the buoy was finally discovered, Aurora and Arrow were much nearer to it than the leaders, and turned it ahead, Hugi rounding in third place, followed by Dorchen and Kittiwake. To get clear of the backwind of the leaders, Hugi split and headed inshore, followed immediately by Kittiwake. This split the fleet into two divisions, soon separated by over a mile, Dorchen, Arrow and Aurora made a pretty fight of it, Dorchen gaining slightly at all times, but not holding a safe lead until well toward the mark. When about a mile to leeward of the turn both Dorchen and Aurora began to worry about Hugi's position and tacked over toward her. Finding that they were obliged to cross into a very different slant to reach her, with a strong probability of not being able to cross her bows, Dorchen very wisely tacked back into the conditions in which she had worked up from the leeward mark, while Aurora stood over to make the test. Hugi crossed ahead of Aurora by a considerable distance, while the Pigeon brothers' craft was barely able to weather Kittiwake. It seemed an open question, governed largely by conditions, as to whether Dorchen or Hugi would be first to turn; but the wind lightened to a considerable degree under shore and Hugi's single reef put her at great disadvantage, and not only Dorchen, but Arrow as well, turned ahead of the Fearey craft. Dorchen's lead was a safe and well-deserved one; but with Arrow and Hugi in second and third places and Bat still on the course under a double-reefed mainsail and steering with a spinnaker pole, it seemed as if the Rhode Island team might at least tie the score. More hard luck was still in store, for Arrow's new shrouds slacked up so badly that she dared not hold her sail full, and, while Hugi dropped back and staved off Aurora all down the long reach in, the short windward

leg to the line was Arrow's undoing, as she could not look anywhere near the wind, and was passed by both Hugi and Aurora in the last quarter-mile. Bat covered the course in the pluckiest possible manner, steered over the long stretch with her jib and spinnaker pole, and picked up the points for last place; but the two accidents in one race were too great a handicap, and the match went to the Massachusetts team, with the individual trophy to Dorchen—a well-deserved victory—with Hugi and Arrow tied for second honors.

At a dinner at the Corinthian Y. C. that evening the cup was presented to Dorchen and arrangements made for a return match in Narragansett Bay the following year.

While the Narragansett Bay team were defeated in the morning races, Hugi won a notable victory in the afternoon races from the entire class, which did much to relieve the disappointment of the Rhode Island men over the team match.

The Corinthian Y. C. offered a very handsome trophy for the 18-footer winning two firsts in the open races, Wednesday, Thursday and Friday afternoons, with provision for a sail-off on Saturday should the three races, as was thought quite probable, fall to different boats. Fourteen boats started on Wednesday and twelve on the other two days.

The first race was held in a light southeast breeze. Arrow I, of the Massachusetts team, secured an unbeatable lead and won. Arrow II, of the Rhode Island team, secured third place, while Hugi, the other Rhode Island entry, could do no better than ninth.

Thursday's race was sailed in a fairly good breeze. Hugi fought her way up the windward leg from a position in the ruck, turned the mark ahead, and maintained her lead to the finish.

With Arrow I and Hugi each in possession of a leg, the rest of the fleet did not intend to give either of them a chance to secure the last race, and thereby prevent a sail-off.

There was a smart northwest wind, and the boats ran to the outer mark well bunched, with Mouse in the lead, followed closely by Aurora, Bonitwo and Hugi. Once hauled on the wind, it was a grand battle. Aurora, Reina and Bonitwo stuck to Hugi, tack by tack, while the Rhode Island craft fought them off one after another. The crucial point of the race came when the weather mark was in sight. Aurora barely crossed Hugi's bow and tacked square on her weather. Bonitwo, following Aurora, could not get across, and was obliged to tack under the lee of the two. Inch by inch Hugi crawled up under Aurora's lee, both craft with their decks buried and the water slopping into the cockpit. Bonitwo had her wind just clear across Hugi's bow, but could not gain an inch. The weather pair came together gradually, Hugi holding a slightly better wind than her opponent and footing just as fast. Pigeon held on until his lee shroud was sagging across Hugi's weather side, and then was forced to tack to save a collision. Free from Aurora, Hugi forged ahead of Bonitwo, backwinding her and forcing her to tack; then she herself tacked on top of the other pair. Meanwhile, Reina, unhampered, had gone into the lead. Tack by tack Hugi pulled her down, turning the weather mark a couple of lengths to the good. Bonitwo, coming to the mark on the starboard tack, forced by Reina and turned in second place. Reaching in, the Massachusetts pair separated enough not to bother each other and set after Hugi. They almost had her, when the wind pulled a trifle aft. Hugi's spinnaker had been up in stops all the way down the wind, hidden behind the mast. She broke it out with the shift of wind, and, before the others could set theirs, had pulled away enough to turn ahead. Tacking into the harbor, she maintained her lead, and crossed the line a few seconds ahead, winning the series.

The utmost good-fellowship and sportsmanship prevailed during the match, and next season will see a series of keen races between the two associations, held in Rhode Island waters, which should be hotly contested from beginning to end.

Drawing a Sail Plan for Changing a Sloop to a Yawl

WITH the growing popularity of the yawl rig for cruising purposes, a great many owners of sloops have had the rig altered to that of the yawl, and we are frequently receiving letters from our readers seeking advice on the subject, or sending in the altered sail plan as they have worked it out for comment and criticism.

We print below the best method of working out this problem, believing it will be of interest to a great many of our readers. We also give a concrete case in point that has been submitted to us by Commander C. S. Stanworth, owner of the sloop Eclipse, showing how the change was worked out on his boat and the problems that the owner was up against in making the alteration.

"The masthead of my sloop Eclipse having broken off just above the spreaders, thus reducing the hoist of the mainsail about 8 feet, it became desirable to alter her rig to that of a yawl as being a more handy rig.

As a sloop, under her original sail plan, the Eclipse carried too much weather helm, and, assuming the after moment to be about 8 per cent. greater than the forward moment, gave the center of lateral resistance 10 feet forward of the center of area of the old sloop mainsail, or about 12 feet aft of after side of mainmast. This agrees closely with the center of area of the centerboard when down.

The sail plan of new yawl rig shows center of areas of plain sails and their lever arms, the combined staysail and jib being shown in dotted lines. This gives, in square-foot moments, the following:

After Moment.		*Forward Moment.*	
Mainsail.....	3,546	Gaff topsail.....	1,400
Jigger.....	15,368	Head sails.....	14,438
	18,914		15,838

This will still give, with all sail set, about 8.5 per cent. more after moment, and it would seem that conditions had not been improved by the change; but even if the entire area of the jigger is effective, the weather helm can be corrected by slacking the jigger sheet.

With jigger and head sails, the boat is well balanced, while with full mainsail and staysail we again have a good distribution. Under close-reefed mainsail, the leverage arm is reduced to 2 feet and the boat will carry a weather helm, which is not objectionable. The mainmast at present is stayed plumb, but, of course, can be stayed forward, reducing the after moment, due to mainsail, if this is found desirable.

The opening in the stern for propeller well I consider negligible, especially as a two-bladed propeller will be used and the aperture is small. C. S. STANWORTH."

THE METHOD OF CHANGING A SLOOP RIG TO A YAWL RIG

As a rule, in designing a yawl-rigged boat it is aimed to have her balanced under either jigger and headsails or under mainsail alone. In changing a sloop rig to a yawl rig it is necessary to have the sail plan of the sloop carefully laid out to scale and the center of this rig determined. If, under this rig, the boat either carries a weather or a lee helm, corrections should be made on the sail plan for the purpose of locating the center under which the boat balances satisfactorily.

It is obvious that the change of rig is accomplished with less expense if the location of the mast remains in its original position.

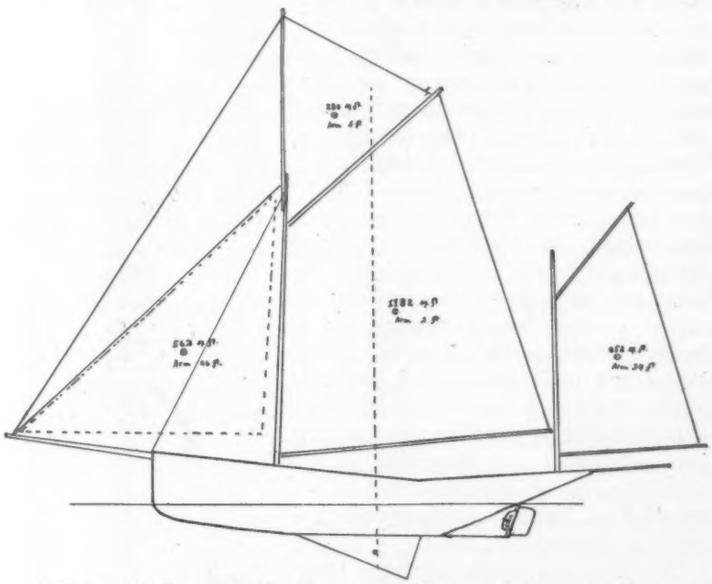
The first step is to assume the position of the jigger mast in what will prove the most convenient place. It is desirable to leave a sufficient space between the end of the main boom and the jigger-

mast, to allow the forward shrouds of the latter to come far enough forward to brace the jiggermast properly without having to use forward runners. When the length of the main boom has been thus determined, the outlines of the mainsail should be so drawn on the plan that its center will come on the same vertical line with the center of the old sail plan. (See Fig. 1.) If this operation is successful—in other words, if it is possible to have a well-shaped mainsail with desired area, the center of which comes where it belongs—then the mast can remain in its original position. If this is not the case, the position of the mast will have to be changed until the new mainsail will fit the above conditions.

The next step is to assume a jiggersail that will balance the headsails (to have their combined center vertically on the same line with that on the original sail plan). In connection with a jigger an outrigger is used for the purpose of trimming that sail. This outrigger is braced by shrouds to each side of the taffrail and under the counter. The length of the jigger boom is made in proportion to the length of the outrigger, to trim the jigger properly. The combined center of the jigger and the headsails can come slightly aft of that of the old sail plan, on account of back-draft from the mainsail to the jigger, which makes the jigger a less effective sail than the others. Furthermore, if a topsail is used on the mainmast, the center of that sail is forward of the combined center of all lower sails, and for that reason, also, a slightly larger jigger than is theoretically required is not out of place.

The sketch (Fig. 1) shows the sloop rig in dotted lines and the yawl rig drawn in full, and we will assume, in changing the rig, that the conditions are to keep the same mast, gaff and jib, and to make the sail area about the same as in the original sloop rig. The mainsail in the sloop rig is 975 square feet; jib, 250 square feet, and their combined center is *C*.

After the jiggermast is located it is found that the length of the main boom in the yawl rig cannot exceed 26 feet. The gaff is 20 feet long. To have about 750 square feet of sail in the mainsail with the above dimensions and the center on the perpendicular line through *C*, the sail will have a very poor shape. By moving



Sail plan of Eclipse, after altering to a yawl, keeping mast in same position.

the mast about 3 feet forward, the conditions regarding the shape of the mainsail will improve considerably. The sail, as shown on sketch, has an area of 745 square feet, and its center is *D*.

The sail area in the sloop rig is 1,225 square feet. The combined area of the mainsail and jib in the yawl rig is 995 square feet. This will leave for the jiggersail an area of 230 square feet. The center of the jib will be about 3 feet forward of its original position, or 20 feet from the vertical line through *C*. The moment of the jib is 250 square feet × 20 feet = 5,000 feet.[3] Assuming a jiggersail of 235 square feet with its center 24 feet from the perpendicular line through *C*, we have a moment for the jiggersail 235 square feet × 24 feet = 5,640 feet.[3]

The difference between these two moments is too great. By reducing the area of the jigger to 220 square feet by taking off some of the after leach, the center of same will move slightly forward, and we have a moment of 220 square feet × 23.5 feet = 5,170 feet.[3]

The difference between this moment and that for the jib is now

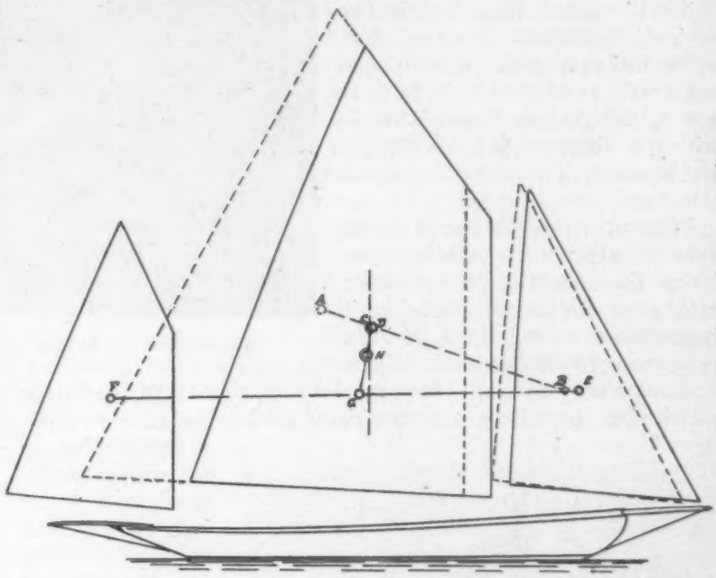


Fig. 1.—Altering sloop rig to yawl rig. Dotted line indicates old sail plan; C, center of effort of old rig; D, center of new mainsail; G, center of jib and jigger.

about right. The combined center of the jib and jigger will be about 5 inches aft of that for the original sail plan, or position *G* on the plan, and the center of the whole yawl rig, *H*.

The above case is one way of solving a problem of this kind. Had it been impossible, for instance, to change the position of the mast, we would have a very ugly mainsail, and would require a larger jib to balance a smaller jigger, providing the total area was kept at about 1,225 square feet. The sizes of the sails in this case would have been out of proportion.

In many cases, too, a topsail and jib topsail must be taken into consideration in determining the size of mizzen or the jiggersail.

In a yawl of the smaller size, where there is, as a rule, a cockpit aft of the cabin and the jigger mast is stepped close to the cockpit coaming, the main sheet can be connected to the boom only in the extreme after-end of same; consequently, the boom under those conditions will have to be a good deal larger in diameter to prevent bending of same than is generally required when the strain is taken from more than one place on the boom. This matter is very often overlooked.

In the case of Eclipse, mentioned above, it would seem that, under the headsails and jigger, the boat is well balanced, though under mainsail alone she would carry a strong weather helm. This can be obviated by making the main boom somewhat shorter, so as to reduce the after moment of the mainsail. This would also allow for a forward strut stay to the jiggermast, eliminating the necessity of forward runners for that mast.

If in actual work the boat carries a weather or lee helm, it is easy, by reefing the jib or staysail, to find out the exact location of the center of effort of the boat before drawing the new sail plans.

Making an Eye Splice in Wire Rope

By W. E. PARTRIDGE

MOST yachtsmen fight decidedly shy of wire rope when any splicing or work has to be done upon it. The rope looks so hard and uncompromising that most men when they want an eye splice prefer to have it made by a professional. The great 3-jawed vise looks so formidable and costly that they pay their good five "plunks" rather than attack the problem themselves. But the job is not as bad as it looks. Wire rope is not nearly as hard to manage as it seems, though you cannot open it with your fingers and a marlinspike is a necessity, even for the smallest sizes.

Without a rigger's vise it is not wise to attempt to handle ropes larger than ⅜ of an inch at first; after some skill has been obtained it is possible to go as large as ½ inch, or perhaps something more. Some few tools are needed. There must be a pair of plyers of 6 or 7-inch size, also wire cutters capable of cutting No. 10 or 11 wire, a marlinspike, a screwdriver and a good, heavy 2-inch screw, and suitable thimbles for the size of rope used. These are sufficient for ¼-inch rope, except that some stout wire for binding will be needed. As the size of the rope increases the binding wire must be heavier.

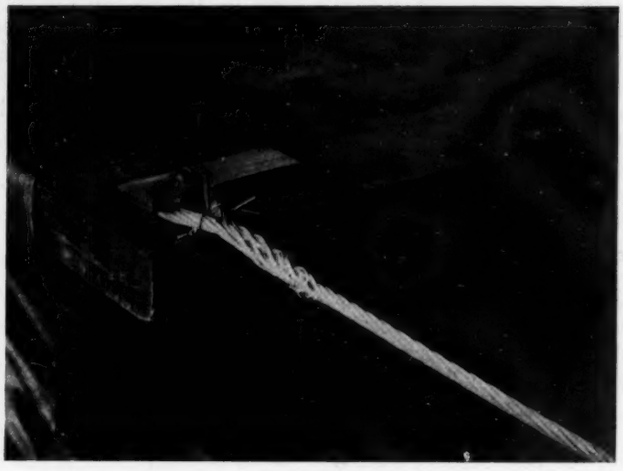


Fig. 2.—Method of holding without a vise while making splice.

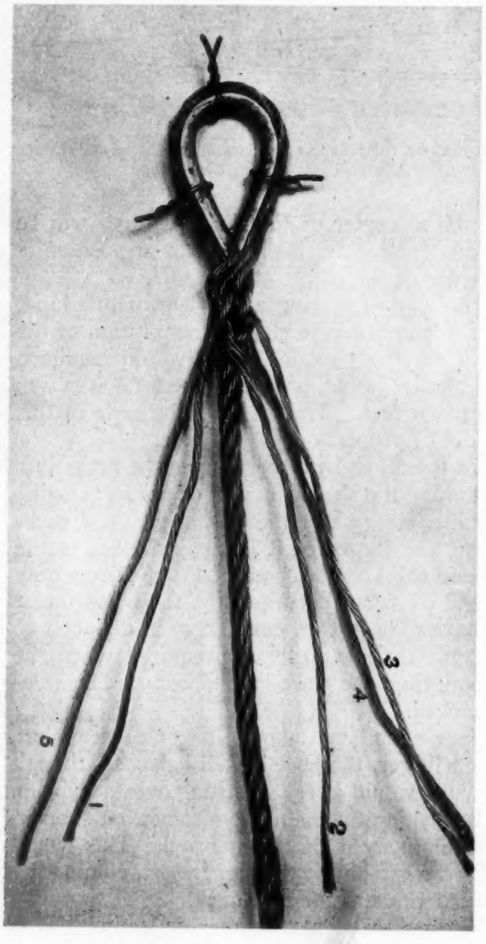


Fig. 1.—Rope wired fast to thimble to hold in place while making splice. Method of tucking strands also shown.

Aside from splicing a pennant onto wire halyards the only practicable thing to be done to wire by any one who is not a professional is to turn in an eye. Select the proper size of eye thimble and wire it on to the rope, at the middle of its curved end. Now bend the ends of the rope so that when brought together they will fit the sides of the thimble closely. If the rope be very stiff it may take some turns of manila, Spanish windlass fashion, to do this, but when the rope is brought snugly into the eye, wire both sides fast, as in Fig. 1. After the first wire tie is put on and the rope brought close around the thimble it may be possible to put the eye into a common vise and hold it while making the splice. But if a vise is not at hand the 2-inch screw and a block of wood (see Fig. 2) will hold the rope well enough to enable one to go on with the splice.

The end of the rope is opened in the same way as in making an eye splice in manila, except that the ends are left longer and the heart is cut out close up to the thimble.

Having six strands to deal with instead of three or four is a little puzzling at first, but by looking closely at Fig. 1 it is easy to see how the first strand, on the extreme left, No. 1, should be tucked. Then the second strand follows. It will be noted that this is a five-strand rope; but that makes no difference in the method, which is the same as in manila tucking.

With small ropes the strands can be untwisted sufficiently with the hands to get the point of the marlinspike into the rope to open it up for tucking. As the size of the rope increases it will be necessary to use a piece of rope wound about the wire with a stick in its bight to open the wire strands a little. Experts put the marlinspike into the rope some distance in advance of the point where the strand is to be tucked and then twist it around "with the lay," so opening the rope for some distance.

After tucking once or twice full size the strands are halved, tucked again and halved, and after the last tucking the strand is turned back and laid in the score of the rope. The wires are cut off at varying lengths, so as not to leave a ridge or bunch at any point. When the ends are turned back the whole eye must be hammered down with a mallet if possible, though with care a hammer may be used. In this way the splice is consolidated and rounded off, instead of rolling under the foot, as in manila.

The next step is the serving. Probably most professionals parcel the splice and then serve, as is shown in Fig. 3. A later method used by some of the largest wire rope makers is to omit the parceling entirely and serve the splice with wire. The end of the

(Continued on page 74.)

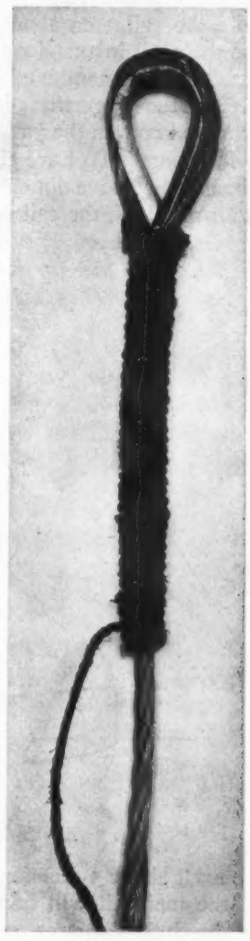


Fig. 3.—Splice parceled and served; wire rope is small; the marlin too large.

The Lady Maud, Schooner Yacht

A NARRATIVE OF HER LOSS ON ONE OF THE BAHAMA CAYS, FROM THE ACCOUNT OF A GUEST ON BOARD

By W. CLARK RUSSELL

CHAPTER VII

ABOUT half an hour before we went to dinner the light air completely died out. This made the swell of the sea all the more unpleasant, and the Lady Maud wallowed in it heavily; but she raised no foam now, though sometimes she would dip her gunwales so deep that the water burst through the scupper-holes in flying jets of spray, as though a force-pump were at work behind them.

Tripshore was now on deck, and when the wind failed us he gave orders to strip the yacht of all but her foresail and forestay-sail, or standing jib. Sir Mordaunt and the ladies were below when this was done. I went to the mate, who was always very civil to me and well disposed, and spoke to him about the mirage. He had heard about it from the men, and his opinion was that if the air was clear the wreck would now be in sight. I asked him if he thought we were going to have dirty weather. He looked around him, and answered that the sky was puzzling, and he couldn't understand the color of the water. Sighting that sun-dog, he said, wasn't overhopeful, yet there was no uneasiness in the glass, which was strange if that sky meant anything. He added: "It's more like thunder than wind, I reckon; yet I don't know but what we may get a stiff breeze from the westward betwixt this and midnight."

"You're ready for it when it comes," said I, glancing at the naked mainmast.

"No use letting the vessel knock her canvas to bits when it can't sarve her, sir. Besides, there's no good in keeping such tall spars as them buckling and jumping. They'd be none the worse for housing."

Norie wanted to be scientific at dinner, and explain the cause of mirages and twin suns. I suspected that he had peeped into some book upon those subjects whilst dressing, for he talked like a man whose ideas were new. But for Miss Tuke, I believe, we should have listened to him; but as fast as he began she drew him away artfully, and having interrupted him, spoke to her aunt, or asked me or Sir Mordaunt a question. So he gave up after a bit, but he took her gracelessness with something more than amiability.

It gradually grew dark as we sat talking and eating. They had furled the awning, which enabled us to see through the sky-light, and I remarked the lurid tinge in the atmosphere, but without commenting upon it, as I guessed by Sir Mordaunt's reserve that he wished me to hold back all forebodings in his wife's presence. He and I, however, were, I think, alone in observing the increasing shadow. The others put it down to the evening; but it was not time for the sun to go to bed yet, and the darkness that almost immediately follows the descent of the luminary in the tropics was of a very different complexion from the brooding, oppressive, reddish haze that had apparently covered the whole sky, and that was casting down a hot, faint, obscure light of its own.

"How fearfully the vessel is rolling!" exclaimed Lady Brookes. "The motion and the heat make me feel giddy." She put her hand to her forehead, and Miss Tuke passed a smelling-bottle to her.

"Let me advise you to lie down," said Norie.

"My cabin is so hot," she answered, peevishly.

"Not hotter than it is here, nor even on deck; and you will not feel the motion in your bed, Agnes," said her husband.

She hesitated, and looked up at the skylight, and then seemed to acquiesce. I jumped up to offer my arm, for my self-balancing properties were better than her husband's; but I was scarcely on my feet when a glare of lightning flashed upon the skylight, and illumined us all as though a rocket had been sent up, and, at the same moment, an unusually heavy swell striking the vessel, rolled her so sharply over that a number of plates, glasses, spoons, and such things toppled off the table, and fell with a great crash upon the deck. Lady Brookes cried out, and for some minutes all was confusion, for the vessel, having rolled one way, must come back again, and bury the other side of her, whereupon more things fetched away from the table, and the din of breaking china and glass, and the jingling and clattering of the fragments on the deck, were bewildering enough.

"There is not the least occasion to be alarmed, Agnes," exclaimed Sir Mordaunt, holding by the table, having been absolutely unable to rise from his chair during that wild and unexpected roll of the vessel. "Walton, you know that in these tropical climates lightning is as common as sunshine, and not a jot more harmful."

"Perfectly true," I shouted. "In the Malacca Straits I have been able to read a book right through my watch on deck by the incessant play of the lightning."

Here Miss Tuke went to her aunt, and began to coax her to lie down. Sir Mordaunt added his voice, and Norie backed him, and at last she yielded and disappeared with her husband and niece, whilst Norie withdrew to his own cabin, and the steward grovelled about on the floor, picking up his broken china and glass.

We lighted our cigars and went on deck. There should have been at least another hour of daylight left; but it was already as dark as evening, though I did not take particular notice of this until I reached the deck, as my eyes had got used insensibly to the gradual infolding of the gloom whilst we sat at dinner. Looking up, I saw that the sky overhead and in the west was covered by a curtain of dense vapor, which, owing, I suppose, to the light of the westering sun, was of a deep, forbidding, bronze-like hue over our masts, though it brightened into an ugly and sallow orange toward the east, where the vapor was not so dense; but in the west the sky was like a pall of motionless smoke, thick, bluish, most portentous and sinister. The sun was behind it, and totally hidden. Under this frightful heaven—for frightful it truly was—lay the sickly heaving sea, almost black in the western shadow, but drawing out into its ghastly sallow green as it stretched away under the lighter sky of the east.

"It is long since I saw such a sight as this," said I to Sir Mordaunt. "It will be black as ink presently."

Another sharp flash of lightning shot out of the smoky thickness in the west, and I marked the spark whirl zigzag across that part of the sky—a perfect fork of wire-like flame—and vanish in the sea. We listened, but no thunder followed.

"I don't like that silence," exclaimed Sir Mordaunt, uneasily. "If that flash was so far off that the thunder it made is inaudible, what will the lightning be when it's overhead?"

"I'd as soon be in a vessel as anywhere else in a thunder-storm,"

said I. "How rarely you hear of a ship being struck! The masts and spars offer so many points that the lightning is scattered by them."

Purchase and Tripshore were both on deck, and most of the men, this being the second dogwatch, though it was probably the heat and the appearance of the weather that held them in a crowd forward, puffing at sooty tobacco-pipes, and constantly looking up and around. The gloom increased every moment as the sun sank deeper and deeper into the darkness in the west on its way behind the sea, and very soon the lurid orange tint went out of the sky, the waterline—nay, the deep itself—grew indistinguishable, the outline of the little vessel faded, and there was nothing to relieve the eye but the binnacle lamp that filled the air with a soft haze, and the illuminated skylights, and the bull's-eyes in the decks over the berths, which twinkled like glow-worms from the lamp-light under them.

The yacht labored heavily upon the swell, and the small canvas that was exposed on her flapped heavily. The creaking and groaning were startling, for the silence upon the sea was profound, and there was no other sound but what came from the vessel, whose plunging and wallowing filled the air with the loud gurgling and sobbing of water—most unpleasant noises to hear in that darkness. There was no more lightning; but the heat made me feel as if I were stricken with a raging fever. I went to look at the compass, to see where the yacht's head had swung to, and perceiving a figure standing a little distance behind the fellow at the wheel, I took it to be Tripshore.

"What do you think this is going to be? Not a tempest, I hope," said I.

"If a tempest's thunder an' lightning, then it's a tempest that's coming," answered a deep wheezy voice, that gave me to know I had addressed old Purchase.

I could see nothing of him but his outline; but no sooner did he open his mouth than the same spirituous smell I had before detected in him filled the air.

"A tempest generally comprises wind," said I, willing to test his condition by a little discourse. "But so old and experienced sailors as you should be able to predict the weather as faithfully as a barometer."

"It 'ud be a poor job if I couldn't tell the weather better than a b'rometer," he answered, shuffling his feet about, and talking with a certain thickness of voice, which the fumes he distributed around him found a complete reason for. "What I says is, b'rometers be damned. I never was shipmates with one afore I took charge here, and if any man can say he's seen me looking at it for the purpose o' guessin' the weather, I'll give him leave to make me swaller the mercury in it. Isn't that right, Tom Hunter?"

This was addressed to the man at the wheel, who, seeing the indecorousness of the skipper's language in my presence, and guessing his condition, and being evidently surprised by this sudden appeal, answered with a short uneasy laugh. That laugh, however, appeared to serve as a hint to the old man; for, without ceremony, he shuffled away to the other side of the deck, or, at least, to some place where he was clean out of sight. I went forward a few steps.

"Is that you, Mr. Tripshore?"

"Yes, sir."

"Do you know that Mr. Purchase is the worse for drink again?"

He made no answer.

"It's an abominable state of things," said I, "that in the eye of such a night as this the skipper of a vessel full of human beings, who look to his skill and judgment for safety, cannot keep himself sober. I shall certainly speak to Sir Mordaunt about him, though not now, as I want this storm to pass away first. I noticed that you have the whole foresail set. If there should be a cyclone in that blackness—and you should be prepared for the worst—you will be showing a whole ocean of cloth too much for the first outfly. Why not close-reef it whilst there is no wind?"

"I named that to Mr. Purchase, sir," answered Tripshore, "but he said no."

"He's too drunk to know what he says," I exclaimed, warmly. "Go and reason with him. If he refuses, give the order yourself. I'll take care you are supported." Here Sir Mordaunt, who was standing somewhere forward of the starboard main-rigging, called to me:

"What's the matter, Walton? Anything wrong?"

"I was merely exchanging a few words with Mr. Tripshore," I replied.

Sir Mordaunt approached the skylight, and called to the steward in a soft voice to hand him up his water-proofs. I requested the man to get mine too; and while I stood waiting, old Purchase went forward, shufflling along the deck like a fisherman, and I heard his thick gruff notes ordering the watch to lower the foresail and close-reef it. This eased my mind. As I bent down to take my oil-skin from the steward, Norie came out of his berth.

"How's the weather, Walton?" he called, looking up.

"Black," I answered.

"Is it going to rain?" said he.

"I reckon it is," said I.

"Then here goes for volume the second," said he, and he very wisely bundled back to his cabin.

If the storm was not right overhead, it was assuredly not very far off. I never remember a more uncomfortable time. The breathless silence, the voluminous heaving of the black water, the impenetrable blackness, were sufficiently subduing; but the worst sensation was the feeling of expectation that the ponderous, brooding shadow excited—the wonder what was going to happen—whether it would open and let down an ocean of flame, or whether there was a gale behind it, or whether it would pass away as breathless as it had come up.

But our doubts were soon resolved. We had scarcely shipped our water-proof coats when some rain fell. Each drop was as big as an egg, and though the fall did not last longer than a man could count twenty, yet so great was the weight of the drops that the deck boomed to the fall. Then came a pause, with nothing breaking the silence but the gushing sounds of water sluicing out of the scupper-holes into the sea. I was in the act of addressing Sir Mordaunt, when a flash of lightning of the very color of sunlight struck through the blackness; nay, had the sun himself looked out in his full glory, he could not have spread a more piercing, widespread splendor. It was like looking at the yacht and the sea in the light of full noontide. How the eye could master so many objects in that breathless gush of yellow flame I can not tell, but I could not have seen more had five minutes been allowed me. The masts, the line of bulwarks, the group of men standing motionless near the foremast in a crouching posture, some of them with their hands to their eyes, the whole sea black as ink, leaning its sharp ebon circle against the sulphur-colored radiant heaven—all these things I saw in that one second. And then the darkness was insufferable, thick as dense folds of midnight vapor, not a stir nor moan of air in it, of an opacity that made me pant, as though the black envelopment suffocated me. The flash fell from right overhead, and it seemed that the crash must follow before the blaze went out. This expectation made the two or three seconds of silence that followed appear as long as a minute; but then came the most ear-splitting roar that had ever deafened me. A crash indeed, not a succession of peals, but one stupendous, unechoing explosion, that, smiting the oily surface of the water, boomed away in a dreadful roar, sinking and sinking its cadence until it became a soft melodious echo in the distance. But scarce had it faded when another sun-bright flash filled the sky. This liberated the rain, and it came down in a sheet, and the deck was so covered with immense hailstones that it was like treading on

shingle. And now, as if two squadrons of aerial line-of-battle ships were engaging one another immediately over us, the air was filled with whizzing darts and lances of flames, dazzling crimson and yellow sparks, wild zigzag streams of fire which filled the water with their tumultuous reflection, until it seemed that a thunder-storm was raging under as well as over us. And the thunder was as ceaseless. I could not have counted two between the explosions. The fierce, frenzied rattling, the ponderous booming, the sudden sharp explosion, mingled together and combined to produce one dreadful uproar. But all this while there was not a breath of air, and the rain fell in perfectly perpendicular streams.

In the very thick of the hullabaloo I heard a woman's voice shrieking.

"Hark!" I shouted to Sir Mordaunt, as we stood together close against the starboard quarter-boat; and we ran, splashing and floundering, over to the companion. The yelling and squealing below might well have made any one believe that murder was doing down there; and the incessant crashing of the thunder, and the fierce lightning that kept the whole sky flaming, gave these female shrieks a character very fit indeed to thicken the senses and make goose-flesh of one's skin.

Sir Mordaunt bundled below at a rate that was like to break his nose for him, while the water poured out of the brim of his hat and streamed away from his oil-skins as though he had just been fished up out of the sea alongside. I followed him, in a wild state of mind, and soon saw what was the matter. Miss Tuke and Norie were kneeling upon Lady Brookes, who lay flat on her back on the floor in hysterics; but if Norie hadn't bawled this out to us, I should have believed her clean out of her mind—raving mad, in fact. It was certainly a most painful scene. Her ladyship, as I have said, was a fine, well-made woman, and the fit made her as strong as a man. The united strength of Norie and Miss Tuke could hardly prevent her from rising; and before Sir Mordaunt and I could get near enough to lend a hand, she fetched Norie such a cuff over the head that if he had not been holding on to her it must have sent his heels into the air. All the while, too, she kept shrieking and sobbing and talking nonsense, whilst the frame of the yacht trembled to the thunder-shocks, and the cabin was filled with a succession of blinding flashes. Sir Mordaunt immediately pulled off his dripping oil-skins; and, dropping on his knees, seized his wife's hand and entreated her to be calm, himself so agitated that his broken words were scarcely intelligible. Presently she grew quieter, and then Norie made her swallow some brandy; and with the doctor supporting her on one side and her husband on the other, she went staggering and sighing to her cabin, keeping her eyes tightly closed that she might not see the lightning.

"What a fearful storm, Mr. Walton!" exclaimed Miss Tuke, holding her hand over her eyes too, for some of the flashes as they darted through the skylight were blindingly brilliant. "How long do you think it will last?"

"It will be passing very soon. It's just a tropical outbreak. Had you lived in the West Indies you would be laughing at all this whizzing and booming," said I, but not very honestly; for I took it to be as dangerous a storm as could have burst upon us, and there is no West Indian living who would not have been awed and alarmed by it.

"I never saw such lightning before," said she, "nor heard such terrific thunder. There! see that!" she cried, raising her voice to a shriek, as one of the sharpest flashes which had yet fallen seemed to set the whole cabin on fire, and was instantaneously followed by an explosion that sounded as though a magazine full of powder had blown up. There was no use trying to put heart into her in the face of such an uproar as that. I advised her to join Lady Brookes, and take as little notice as possible of the lightning; and then went on deck again, first peeping at the glass, and observing no change in it.

The truth is, I could not persuade myself, from the indication of the mercury, that a tempest of wind—short-lived, indeed—would not follow this thunder-storm; and this being my expectation, the knowing that Purchase was in no fit state to command the schooner, should a sudden extremity confront us, determined me to keep a lookout for myself, for it was evident that Tripshore would not act independently in Purchase's watch; and, moreover, it would be Purchase's watch on deck until midnight.

The storm played furiously, and continued to do so for upward of a quarter of an hour after I returned on deck, during which time the rain fell in torrents and flashed up the sea into a surface of phosphorescent foam by its weight; but not a breath of air slanted those lines of water, which sparkled in the lightning in greens and blues and yellows.

Both Tripshore and Purchase remained on deck, and the men forward crouched, with scarcely a move among them, under the bulwarks. I constantly looked aloft to observe if the lightning had damaged us there, but nothing was touched. I could not be mistaken in that. Some of the flashes were so vivid that I could follows the masts to the trucks, and see the little vane at the head of the mainmast; and yet it was certain that the electric fluid had run over the yards and spars as water might, for at times I had perceived sparks of intense brilliancy whizzing along the topsail sheets, which were chain, and along the jackstays, and flying off into the air, just as you may note the white fires flash away from the wires of an electric battery.

But in a quarter of an hour, as I have said, it became evident that the worst of the storm had passed, and that the body of it was veering to the eastward; and presently looking into the west, I spied what might very well have passed for a ship's light, a small yellow star, and then another, and yet another, until, and while the storm was solemnly moaning in one direction, and the heavens all that way were tremulous with the glare of lightning, the sky in the opposite direction was quite clear and the stars shining. But the storm had left the calm as dead as it had found it.

I took off my oil-skin, and hung it over a belaying-pin to let it drain; and whilst I was doing that Sir Mordaunt came on deck, followed by Norie. He approached me close, to make sure of me, for it was still very dark, and exclaimed:

"Oh, Walton, thank God the storm is over! I really believed at times that the yacht would have been split in two, and sunk like a bullet. Did you ever see more frightful lightning?"

"Never; and we want no more. How is Lady Brookes?"

"Pretty nearly right again, but low, of course."

"If only a little wind would come," said Norie, puffing as though he were suffocated, "her ladyship would be herself. What she wants—what we all want—is air. An atmosphere chokeful of electricity, not to speak of flashings of fire and crashings of thunder, such as might make a man believe the Day of Doom had come at last, plays the deuce with weak nerves."

The stillness was indeed wonderful, for the muttering of the departing storm was too far off to vex the ear; indeed, it seemed to define and heighten the silence, like the distant music in the dead of a peaceful summer night ashore.

"It is seldom that so wild and heavy a storm passes so breathlessly," said I. "But if I am not very much mistaken, we shall have a breeze of wind from the westward presently. Yonder sky is clearing fast."

"In that case it will be foul for us to reach the wreck," said Sir Mordaunt.

"Certainly it will; but I had clean forgotten the wreck," I answered.

"What should be done?" he asked. "I am sure that mirage was meant as a call to us, and I should feel exceedingly uneasy if we missed the vessel."

"Why," said I, rather struck with this remark, for I had always

considered my friend as of a literal and prosaic cast of mind, "if the wind should come westerly, all that can be done is to put the schooner under easy canvas, and ratch her leisurely in the direction where we suppose the wreck to be. A bright lookout for the vessel should be kept."

"I'll go and speak to Purchase," said he. "I am determined to have a look at the wreck, if she is to be seen, and the wind will let us approach her," and he walked over to the skipper.

"Sir Mordaunt seems quite bitten by that mirage," said Norie. "I hope, if we are going to look for it, it won't keep us bothering about here long. It's simply roasting work without a breeze. Both day and night are simply insupportable, especially the night. When are we going to get those northeast trades you once spoke about? Have they given up blowing?"

"I used to know where they are supposed to begin, but I won't swear to the latitude now," I answered, listening all the while with one ear to the humming and grumbling of the conversation going on between Sir Mordaunt and Purchase near the wheel.

Meanwhile the watch below had quitted the deck at the sight of the stars, and gone to their hammocks, and here and there a man was slapping about him with a swab. Just before Sir Mordaunt rejoined me, I caught sight of a breeze of wind darkening the star-lit water in the west, and in a moment or two Purchase rolled forward, calling upon the watch to make sail in his deep sea roar, to which rum, or whatever his liquor might be, had given a shrewder huskiness. Sir Mordaunt took my arm, to draw me away from Norie, and asked me if I had spoken to Purchase during the evening. I answered that I had.

"Did you notice anything peculiar about him?" said he.

"I thought he was rather drunk," I answered. "Is that what you mean?"

"I won't say that—I won't go so far as that," said he, in a subdued, anxious voice. "But I am afraid the man has been fool enough to swallow more than his head can carry."

"And not the first time, either," said I. "Not very long ago I found him muddy and merry in his watch on deck, and when I smelled his breath to-night, I resolved to speak to you seriously about him, though I should have waited for the morning."

"I must talk to him," he exclaimed. "I must call him into the cabin to-morrow and rate him. Mind you, Walton, the man's not *drunk*. I don't even say he's muddled. He's just a little thick. I am sorry you have noticed this in him before. Still, it won't do to be *too* critical. Here you have a fine old seaman who has run us to this point all right, and before we condemn him let us make sure he is not one of those men whom a very small drop of spirits intoxicates."

"No, no," I interrupted; "his nose doesn't blush for nothing. A red nose is the drunkard's conscience; and if Purchase can't swig down half a pint of raw rum without winking, I'll forfeit fifty pounds."

But Sir Mordaunt would not hear this. He said (of course very kindly) that I was prejudiced—which I did not deny; that it would be unfair to take an extreme view of the old man's indiscretion; that if drinking was a habitual vice with him, the matter then would be a very serious one, but that he had only been detected twice slightly the worse for liquor since we had left England. "Slightly, I say," he added, "because it does not prevent him from attending to his duties, as you may judge for yourself"—pausing to give me an opportunity of hearing the skipper singing out to the men. "I have not spoken to him, so let us give him a chance. It is a hundred to one if he repeats this folly."

A hundred to one if he doesn't, thought I; but I would not pursue the subject, mainly because I did not want to figure as an intruder nor to be thought unreasonably prejudiced, and also because I could not help seeing it was my friend's dread of alarming his wife that made him reluctant to witness anything seriously significant in Purchase's "indiscretion."

But already the breeze had reached us. The water was rough with it, and the yacht under her mainsail and standing-jib was scraping along, looking well up to the bearings which Sir Mordaunt was anxious to make. And here I am bound to say that Purchase understood his master's directions, and had acted properly in keeping the schooner under easy canvas and ratching leisurely. Sir Mordaunt took care to call my attention to this, and was evidently pleased because I had nothing to say. The breeze freshened slowly but steadily. Every vestige of the storm had long since vanished, and the stars were now dipping to squadrons of clouds sailing up from the west in swift procession, and in appearance so much resembling the trade-clouds that, had they been coming up from the north and east, I should have believed that we were leaning before the first of the regular winds. The breeze gathered weight fast, and presently the water was all white to windward of the yacht and the booming of parted seas at the bow as regular as the grinding of a crank. After the oppressive heat of the calm the sweeping air was as invigorating and delicious as an iced cordial.

CHAPTER VIII.

By half past ten I was very sleepy. Miss Tuke had come on deck and kept Sir Mordaunt and me company in a few turns; but Norie, who made one of us, managed to hook her arm under his, pretending that the deck was not safe walking, as though *he* (whose gait was a convulsive stagger compared with her beautiful, elastic, buoyant tread) could prop her up. But she was disposed to be complaisant, and presently he sneaked her over to the lee side of the deck. If this did not delight me, I was solaced by remembering that she had often snubbed him briskly enough, and I construed her kindness into a little compliment to his amiable reception of her mild derision.

But, as I say, at half past ten I felt very sleepy. There was nothing in sight, the wind was piping grandly, and the yacht having been put about for a short board, so as not to miss the wreck by going to leeward of her, had settled down on the port tack, and was yerking along, her sharp nose biting an opening through the short, black, foam-topped surges. It seemed a pity to be cruising about after a kind of phantom ship when we could have laid our course at nine knots an hour, and made perhaps a fair run out of these humbugging latitudes. But there was too much humanity, though based, perhaps, on a somewhat airy foundation, in my friend's resolution to allow me to utter a word against it.

I was awakened by a sharp rapping on my door, and on opening my eyes was surprised to find the daylight broad upon the scuttle, for it did not seem to me that I had been asleep above an hour. I asked who that was, whereupon the steward put his head in and told me that the wreck was close by, and Sir Mordaunt would be glad if I'd come on deck. I immediately rose and dressed myself. It was easy to judge without going on deck that there was a considerable sea running, and a very strong wind blowing, for the yacht was plunging sharply, and every now and again I could hear the sharp rattle of spray upon deck, while the washing of the sea against the side was exceedingly heavy and noisy. In less than five minutes I was out of my cabin.

Sir Mordaunt stood close against the companion, gazing to leeward, and when he saw me he pointed with great excitement to the sea, crying, "There she is, Walton! I told you the signal was not put into the sky for nothing. How are we to rescue them?"

I looked, and saw a large water-logged vessel—apparently a bark—upon our lee beam. She was a complete wreck, and recalling the features of the mirage we had beheld on the preceding day, I perceived that this was the vessel that had painted the reflection in the air. Her foremast was gone just under the top, though the foreyard still swung upon it, supported, it seemed to me, by the truss. Her maintopmast was standing, but her mizzenmast had been broken short off at the deck, and stood up like a huge

bunch of jagged, white splinters about two feet high. Portions of her deck forward were blown out. Only a sailor can figure to his mind the image of confusion and wreckage aloft, masses of black rigging hanging over either bulwark, the maintopgallant-mast swinging over the topsail-yard, upon which the furled sail lay in rough heaps of canvas, with the gaskets hastily and clumsily passed, as though by men who had worked in an extremity.

But this was not the spectacle that fixed my eyes. The hull of the vessel was sunk to about six inches below her washboard and about three feet abaft the starboard fore-rigging the bulwarks were smashed level with the decks, making a fissure about twelve feet wide, through which, as the hull slowly rolled, with the most sickening, languid movement that can be imagined, the water flashed out in a roaring coil of foam, as though a sluice-gate had been opened. She had apparently had a deck-load of lumber, for though most of it was gone, a number of planks still littered the decks, lying one athwart the other in hideous confusion, with fragments of the galley and fore-deck-house, which had been split to pieces, lying amongst them, together with such a raffle of gear, broken spars, pieces of canvas, and the like, that no description could give you the barest idea of the dreadful picture of shipwreck that immersed hull presented.

There was another deck-house aft, close to the wheel (or where the wheel had stood), which the furious seas had left uninjured; and upon the top of this structure were three men and a woman, lashed to a thin iron rail that ran around the top of the house. On examining them through a binocular glass, I perceived that two of the men were scarcely clothed, having no more than their shirts and drawers on, whilst the woman had a sailor's jacket buttoned over her shoulders; but her black hair was loose, and blew out in a cloud from her head—a small matter for me to take notice of, and yet one that gave a most melancholy wildness to that miserable group of human beings. Meanwhile, and very frequently, the seas, dashing themselves against the weather bulwarks of the wreck, shot up in long sparkling masses of green water, that blew in scattering clouds over the deck, and again and again the men and the woman were hidden from our gaze by bursts of spray which momentarily veiled the whole of the after-part of the bark.

It was indeed blowing a very stiff breeze of wind, and the pitching of the yacht was made fast and almost furious by her being hove to under a treble-reefed gaff-foresail, with her nose right into the wind, to prevent her forging ahead of the wreck.

I do not say that the sight of those men of themselves would not have made a most thrilling and irresistible appeal to us for succor; but how that appeal was heightened, so that it raised a passion of anxiety in us—at least I can speak for myself and Sir Mordaunt—by the presence of the poor woman, I will leave it to your own heart to conceive. All our crew stood forward looking at the wreck, and constantly directing their glances at us, as if to guess our intentions, and Purchase and Tripshore were together near the wheel.

"Walton," said Sir Mordaunt, who seemed to be stirred to the very soul by the sight of those people on the bark, "you'll not wish me to apologize for rousing you up at this hour. I want you to advise me. Purchase is dead against our lowering a boat in this sea, and says we should stand by the vessel until the weather moderates. But this wind may last for another week, or it may freshen into a gale and blow us away. Meanwhile how long have those people been in that situation? For all we know, they may be starving. You see they have no boat, and can not come to us. We are bound to succor them, and at once."

I took a hurried look around the sea, and said, "Yes, at once."

"At all events, the attempt must be made," he continued, in a manner so agitated that his words rolled over one another as they tumbled out of his mouth. "I'll cheerfully share the danger. I'll go in the boat."

"No, no," said I; "if you'll put the job into my hands, I'll answer for the right kind of attempt to save them being made."

"You are a good fellow," he cried. "For God's sake, go to work."

His charging me with this matter convinced me that he had found old Purchase more obstinate than he liked to admit. But it was impossible to look at the wreck and wonder at his emotion. The people made no signs to us, unless a sign was meant by the woman, who sometimes raised her hand. They hung together like corpses; but no doubt their reason for keeping still was that if they unlashed themselves they stood a great chance of being swept overboard. Although we were hove well to windward, and abeam of the wreck, the send of the sea was settling us faster to leeward than she was traveling, and every heave carried us nearer. This, however, was no great matter, for the yacht was perfectly under command, and a shift of the helm would speedily forge us ahead of the wreck. As it was, we were now near enough to make our voices heard, so, jumping on to the rail, I hailed the vessel. One of the men replied by lifting his arm.

"Are you English?" I shouted.

He motioned affirmatively. This was fortunate, for had they been foreigners I must have found great difficulty in making my meaning intelligible. At my first call, the men clapped their hands like shells to their ears, to catch my words, and the passion of eagerness expressed by this posture made them the most moving figures in the world.

"We will send a boat," I hallooed; "but as we can't risk sheering alongside, we'll drop under your stern, and, as we pass, you must jump. Do you follow me?"

The man again raised his hand.

"See that you get the woman over first."

This injunction was likewise heard and understood. I sprang on to the deck and ran up to the mate.

"Mr. Tripshore," said I, "yonder is the biggest boat," pointing as I spoke, "and, fortunately, she hangs to leeward. Will you please sing out for volunteers? I'll take charge, and if you'll accompany me I shall be glad."

"I'll go, sir," said he, promptly; and immediately went along the deck and called for volunteers. All the men came tumbling aft—that is, all the sailors among them. My utter disregard of old Purchase had put him into a great passion, and he was additionally mortified by the quickness of the men to come into an errand which he had advised Sir Mordaunt against.

"It's nothen short o' murder!" he rattled out, straddling up to Sir Mordaunt and struggling to control his rage. "If Mr. Walton's a sailor, he'll know that this is no fit sea for a yacht's boat to be lowered into."

"Keep back!" shouted Sir Mordaunt, impetuously. "Mr. Walton knows what he is about. Don't interfere with him."

What more passed I cannot say, being busy from that moment with choosing my men for the boat. She was a six-oared boat; but I would not fully man her, for, though I saw it would be hard work pulling to windward, which we should have to do to regain the stern of the vessel, yet those people on the wreck must make the boat dangerously deep in such a sea if six men manned her. I therefore chose three of the best hands and told Tripshore to take stroke.

"When we go clear," I called to Sir Mordaunt, "let Purchase make a board to windward, and then wear and heave the yacht to, to leeward of the wreck." And, so saying, I jumped into the stern-sheets, shipped the rudder, the men seized their oars, and we were lowered.

The boat hung by patent clips—that is, by hooks which flew open and released her the moment she touched the water and eased the falls of her weight. But for this we might not have got away without a ducking, or something worse. As it was, five

(Continued on page 70.)

How to Measure Power Boats Under A. P. B. A. Rules

By H. E. DANTZEBECHER, N. A.

MOTOR-BOAT racing has been going on in this country for so comparatively short a time that in many localities where the American Power Boat Association's rules are used the matter of properly measuring competing boats has been a difficult one to overcome. In places where the club is fortunate enough to be able to get a naval architect for a club measurer the problem has not been a difficult one, but in a great many clubs it has been impossible to get a technical man who knew enough about the formula to serve, and it has been often necessary to send long distances to get a club fleet properly measured and rated. What the average club measurer has learned he has gathered here and there from what he may have read on the subject, and in many cases he is not sure that his measurements would stand the test of a naval architect's remeasurement. As power boat racing is bound to grow, and as each club measurer desires to be able to do his work in a satisfactory manner, the following article as to how to go about the work of arriving at a proper rating under the A. P. B. A. rules, and the implements necessary in obtaining the result, should be of interest.

Early last summer I was called upon, on very short notice, to become the official measurer for a series of regattas to be held on the lower New Jersey coast, and I was obliged to start immediately for Beach Haven to measure for the first race. As it was, I did not arrive until after this race had been run, and was forced to do my measuring afterwards and figure up the ratings before the prizes could be awarded.

Being called upon so suddenly, the only implements I had were a 100-foot steel tape and an A. P. B. A. book of rules. Having done no measuring for the past three years, I had given my implements to the club for which I was then measuring, so now had to borrow a couple of lead "dipsies" for plumb bobs and get two slats of wood and, with a small hand-vise, rig up an adjustable square, so that I was working under great disadvantages. Before the summer was over I found that most of the measurers of the smaller clubs did their work with a similar contrivance, and I only met three who had anything like the proper appliances. Yet this is work that cannot be properly and accurately done without the best of tools.

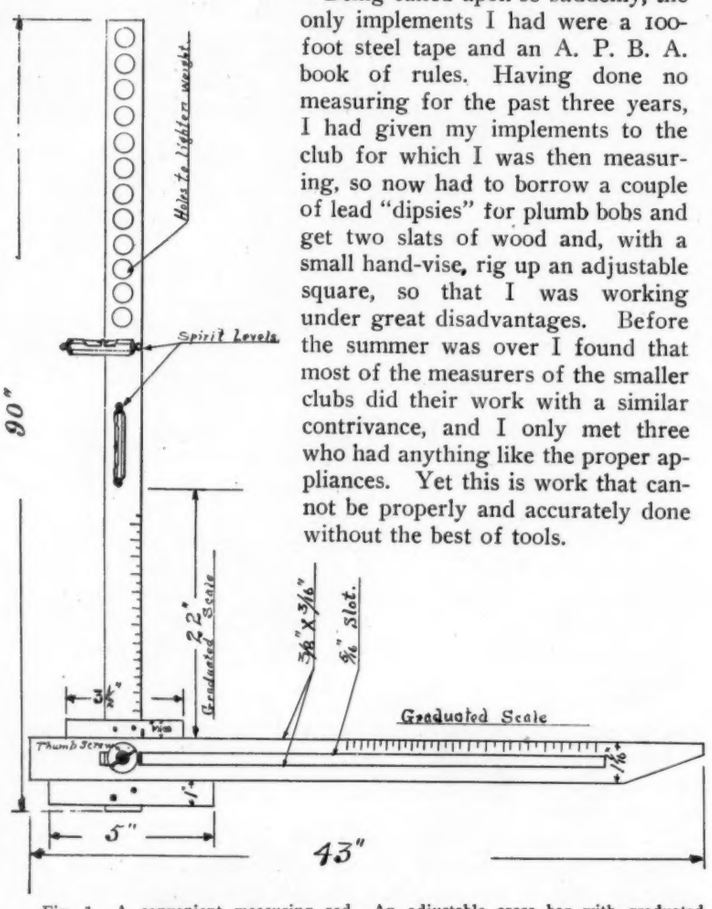


Fig. 1.—A convenient measuring rod. An adjustable cross bar with graduated scale is kept at right angles to the upright by permanent guides. Spirit levels are provided for both horizontal and perpendicular positions.

Before the next race was due I had secured an adequate equipment and one which every measurer should have if he wants to do accurate work. This consisted of two good plumb bobs, a spirit level and calipers, and a very fine adjustable square, made of brass and fitted with spirit levels, making an instrument which would not corrode, swell or shrink, and was always accurate. To make the latter I bought a brass strip, 7 feet 6 inches long by 3/16 inches thick by 1¼ inches wide, and at the bottom end put on, by dowels and solder, two ⅜-inch by ¾-inch by 4½-inch strips for guides at right angles to the long strip. These pieces were 1 1/16 inches apart, with a thumb-screw in the center to clamp the movable part to the upright, the guides always keeping it square for any adjustment (see Fig. 1).

The bottom bar, or slide, was made of two strips, ⅜ inches by 3/16 inches, spaced 5/16 inches apart, and fastened together at either end, leaving a slot for the clamping screw to slide in, this slide being graduated in inches, so as to be quickly set and fastened, while the upright bar was also graduated, so as to get a quick and accurate reading for the depth of point *C* (Fig. 3) beneath the surface, as this depth, multiplied by the L. W. L. beam, gives us the area of 'midship section, or the *dividing* factor in our measurement formula, which is

$$18\sqrt[3]{\frac{\text{sq. root L. W. L x H. P.}}{\text{M. S.}}}$$

This part of the work cannot be too carefully done, as the size of this section largely governs the final result and the rating of the boat. In fact, this is the most important part of the work in the actual measuring of the hull.

Of course, the rules stipulate that the place where the M. S. shall be taken must be 55 per cent. *aft* of the stem where it cuts the water in all but speed boats, or so-called "automobile" racing boat (a name against which I protest with my whole soul); and in these we take the M. S. any old place the owner says, it obviously being to his advantage to find the place where it is greatest.

I fitted two spirit levels to my "divining rod," as I called it, one for horizontals when it was laid across the hull for measuring beam, and the other for the upright position when taking the depth for *C*.

In taking the beam, I always laid the brass rod across, unless the hull was too wide, using the "slider" as a square for one side and dropping down a plumb bob on the other, at the same time

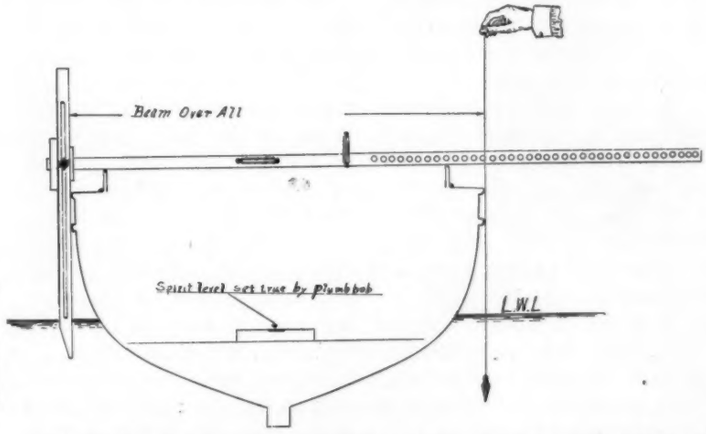


Fig. 2.—Measuring beam. Lay rod across boat for extreme beam, and measure in at water line from plumb bob and cross arm to outside of planking, deducting sum of these measurements from the over-all beam to obtain beam at water line.

measuring the "flare" of the sides (see Fig. 2). It is always best to have one method of working, such as the following: Beginning at the topmost point of the stem, the overhang at the bow is found by dropping a plumb bob and measuring in from it to the stem at waterline, first getting the boat on an even keel and setting a spirit level on the floor, to be sure that she is plumb. The overhang at stern is next found in the same manner, and then the over-all length is taken, the length of the two overhangs being added together and the sum deducted from the over-all to get the L. W. L., of which we have to take the square root when figuring up the rating. After finding the L. W. L., get the M. S. position at 55 per cent. aft of where the stem cuts the water, and then, placing the measuring rod across the hull, get the extreme beam and "flare" (by the use of plumb bob, as in finding overhangs), so as to deduct the latter to find the L. W. L. beam, which must be divided by 5 to find the point at which to measure for *C* (see Fig. 3).

In the illustration given you will see that the boat is 5 feet 6 inches over all, with a flare of 3 inches on each side, so that, after deducting the two sides, or 6 inches, we have a L. W. L. beam of 5 feet. Take one-fifth of this, or 12 inches, to find the point at which we must obtain the under-water figure for depth to find M. S. area by measurement. Set the adjustable cross-bar at 15" (12" + 3" flare) and place the upright against the hull at the M. S. position, and when the point of the adjustable bar touches the hull, and is parallel with the surface, as indicated by the spirit level on the upright, then the distance that this point is under water can be read on the graduated scale of the upright. This is the depth for *C;* and this depth, multiplied by the (L. W. L.) beam, expressed in feet, will give us the area of the 'midship section, which, in this case, is 2.5 square feet, as the depth of *C* is 6 inches and 5 feet × 6 inches = 2.5 square feet.

The next operation is the taking of the engine horsepower. To get the bore and stroke of an engine and thus be absolutely sure of a correct horsepower rating, a wire may be inserted through the relief cock opening on the side of the cylinder,

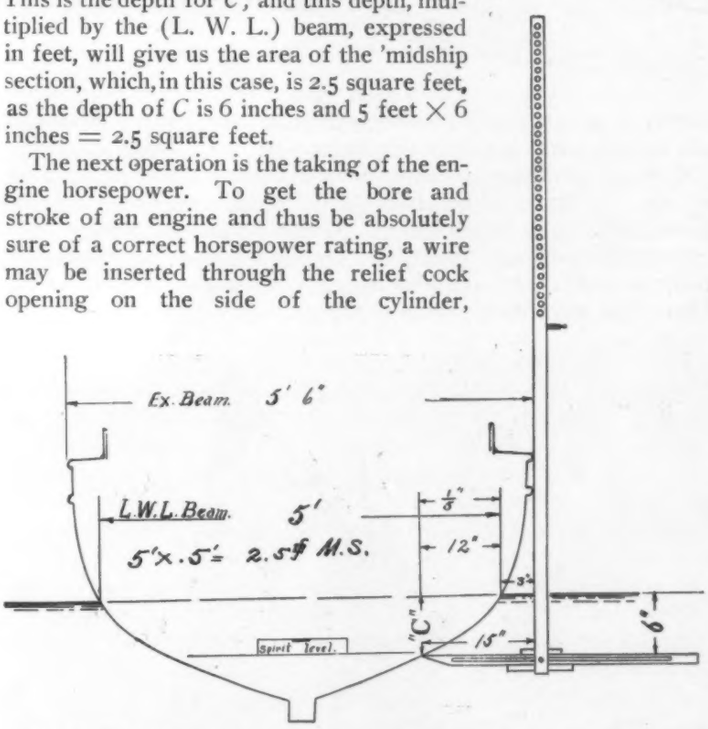


Fig. 3.—Finding area of midship section. The depth of "C" is found by setting the adjustable cross bar at the proper figure to measure in from the side of the boat, when the depth is read on graduated scale on upright.

always removing the cock, and turning engine over until the piston is at bottom of stroke. The wire can then be pushed in until the opposite side of cylinder stops it and this distance measured. The engine can then be turned over until the piston is at top of stroke, when the wire is again inserted, and this distance, subtracted from the first, giving the bore, or diameter. For the stroke, the spark plug can be removed, and by turning engine over, the stroke is quickly found.

In some engines I had to take off the head in order to be sure, but not often. The bore and stroke of some engines can be obtained with a pair of calipers on the piston through the hand-hole plates in base.

The horsepower is found by multiplying the area in square inches of one cylinder by the number of cylinders and dividing by a constant, this quotient being the horsepower for *speed boats;* but in any other type the horsepower is only two-thirds of that for speed boats, even though the engines are identical, the formula being based on a piston speed of 1,000 feet per minute.

After figuring our horsepower, we find the square root of the L. W. L. (by turning to the tables) and multiply this by the horsepower. This product is then divided by the area of the 'midship section, and the cube root is then found of this quotient. This cube root is then multiplied by 18, an arbitrary number, and the result will be the rating or racing length of the boat, *provided* the measurements and figures are correct. Let us assume a case. Say the L. W. L. length is 25 feet; and the square root of 25 is 5. If the horsepower is 20, then 20 × 5 = 100, and this, divided by a M. S. of, say, 2.5, gives 40. The cube root of 40 is 3.42, and this multiplied by 18 = 61.56, the rating of the boat.

The operation of measuring a boat would be much more easily understood if an example such as the above was given in the A. P. B. A. book of rules, showing in detail just how to work it out. We would then get better work on the part of many unprofessional measurers, who know but little of mathematics.

While, during the season, I was impressed with the apparently equitable rating of the boats, as shown by their actual performances, yet I feel that the same results can be had from a simpler method of calculation, even leaving out the square root and cube root altogether. To measure an average boat and figure her up now takes considerable time.

The rules say that boats shall be measured afloat with two men aboard, and this is a point that should be observed. Boats are measured in many cases with two men aboard, both of whom are large or heavy men, while on race day the big fellows stay ashore, and their substitutes who are aboard may weigh at least 50 pounds less. In a light displacement hull this means much. Care should also be taken to see that the boats are pumped dry before measuring, a bilge full of water making a vast difference.

At a recent meeting of the A. P. B. A. it was decided to take displacement of high-speed boats by actual weight rather than by the area of 'midship section; but as there are many clubs where facilities for weighing cannot be had, it is probable that the older method will prevail for some time in most localities.

To do the work properly and carefully, one must have quiet water, and such a place should be found—or made—at every club. Each club should have a good measuring instrument kept under lock and key.

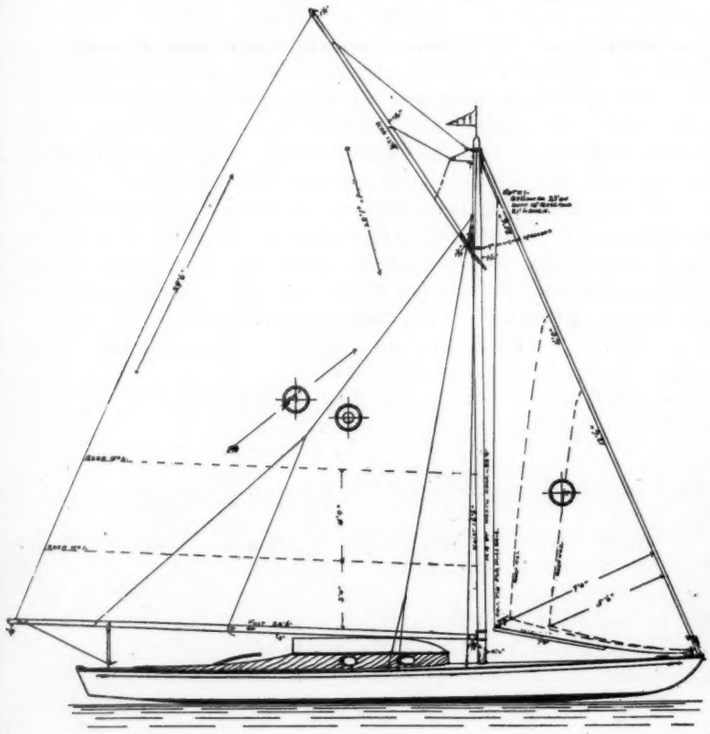
Plans and Specifications of a 16-Foot Fin-Keel Knockabout

WE reproduce herewith construction and sail-plan of a 16-foot waterline fin-keel knockabout from the boards of John A. Connolly, Jr., Brooklyn, N. Y., for Mr. Henry Preuse and Ernest Stockman, members of the Jackson Park Yacht Club, of Chicago, Ill.

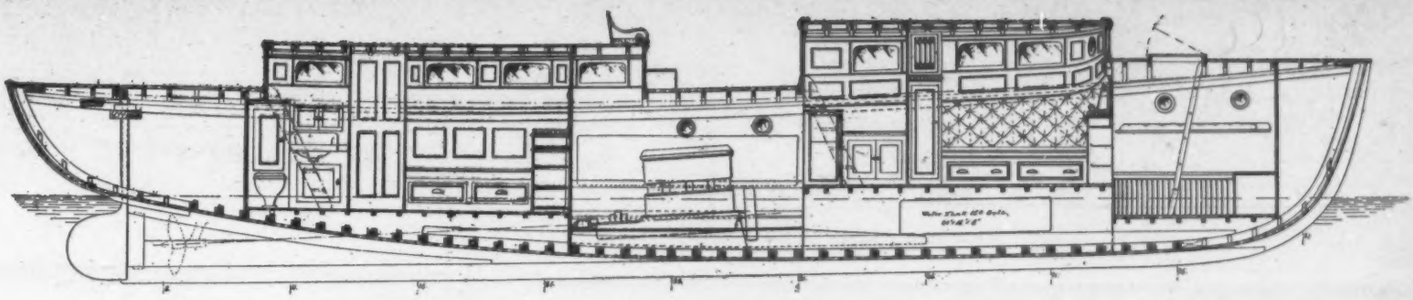
This boat is 27 feet 9¾ inches on deck, 16 feet waterline, 8 feet beam and 5 feet draft. She has a metal fin, with a 300-pound bulb of iron attached thereto. The sail plan shows a spread of 425 square feet of canvas, of which 339 square feet are in the mainsail and 86 square feet in the jib.

This boat is now being built by the owners, who expect to have her out early for the season of 1911. She is of the same model as the Bellport Bay Yacht Club one-design class, which did so well during the race week of the Atlantic Yacht Club, held at Sea Gate, August 31, September 1 and 2, 1910, except that she is somewhat longer on deck and has a fin substituted in place of a centerboard,

The construction plan calls for a spruce backbone 2½ inches thick, with stem and stern posts of the same material and clamps of spruce 2 inches thick. There is a board keel of 1 inch by 8 inches yellow pine. The frames are of oak, 1 inch by ⅞ inch, spaced 10 inches center to center. The fin is of ¼-inch galvanized metal, fastened to keel by ½-inch bronze bolts through spruce knees at every other frame. Planking: Top and garboard streaks of ¾-inch yellow pine, balance of planking, ¾-inch cedar. Deck beams of spruce, 1¼ x 2 inches, excepting Nos. 12 and 27, which are of oak, same size. Mast pardners of oak. Deck planking, 1⅜ by ¾-inch cypress, canvas-covered. Floors, 2½ by ⅞-inch spruce. All knees to be of spruce, with oak sockets for all tie-rods. Sill, ¾ by 2-inch spruce. Cockpit coaming and coaming of cabin house, oak. Mast, 4½ inches diameter, 23 feet from truck to deck. All standing rigging of best steel wire rope. Fastenings of galvanized iron or copper.

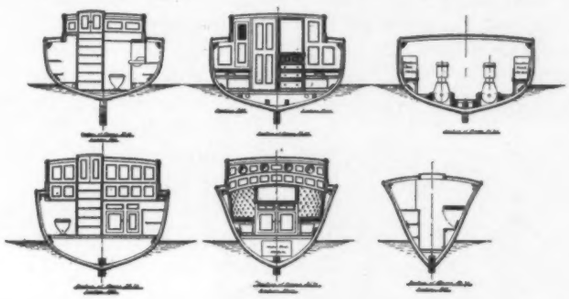


Lady Jean, Bellport Bay Y. C. one-design class, winner of series at Atlantic Y. C. Race Week.



A 54-Foot Bridge-Deck Cruiser

THE accompanying illustrations show a 54-foot, bridge-deck motor boat from designs of Messrs. Cox & Stevens that is now under construction for her owner, a New York yachtsman, and which will be completed in the early spring. The dimensions of this boat are: Length over all, 54 feet; length on waterline, 48 feet 7 inches; beam, 11 feet 8 inches; draft, 3 feet



6 inches. The motive power consists of two 18-horsepower gasolene engines, situated amidships, the engine compartment being separated from the rest of the vessel by watertight steel bulkheads. This compartment also contains the gasolene tanks, which have a total capacity of 280 gallons.

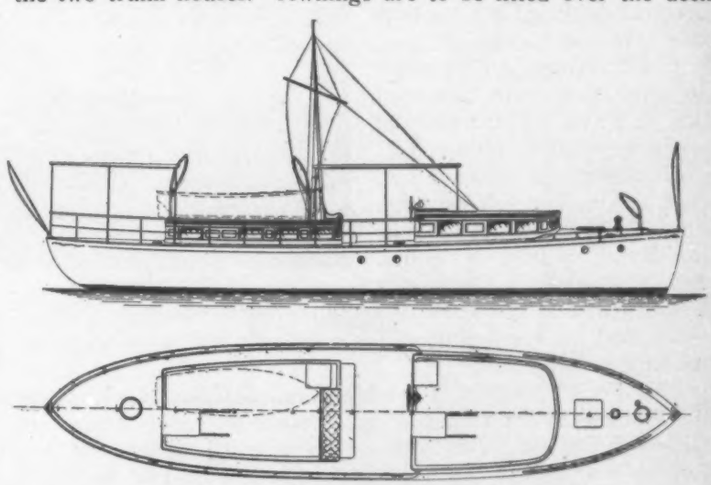
The plans show an attractive-looking vessel with an unusual amount of accommodation, and there is no question but that the boat will be exceedingly comfortable and very able for her size. The general proportions are good, the sheer is pleasing, the draft is sufficient to allow good deadrise on all sections. The forward sections particularly are powerful, having good flare.

The vessel is being constructed in a most substantial manner, the keel and keelson being of oak, with timbers of the same material, the planking of yellow pine, the trunk houses and exterior bright work of mahogany, and all fastenings of composition or copper.

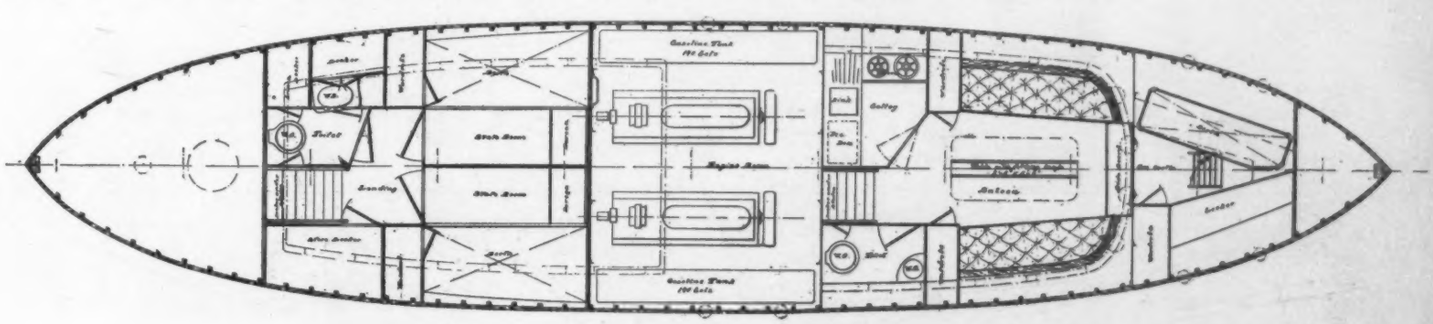
The forward trunk house, which is entered from the starboard side of the bridge deck, contains, at the forward end, a saloon having on each side a full-length sofa, which can be used as a bed; a sideboard at the forward end, and two full-length wardrobes at the after end, one on each side. The companionway from the deck leads directly into the saloon. On the starboard side of the stairs is a toilet and on the port side a small galley, with ice box, stove, sink and stowage space. Forward of the cabin house, and accessible from the forward deck, is the forecastle, having accommodation for the crew. The bridge-deck portion of the vessel extends over the greater part of the engine room, there being, however, a portion of the after-house over this space, so as to give good working headroom and ventilation. A seat is worked across the forward end of the after-house, which forms a very pleasant lounging place.

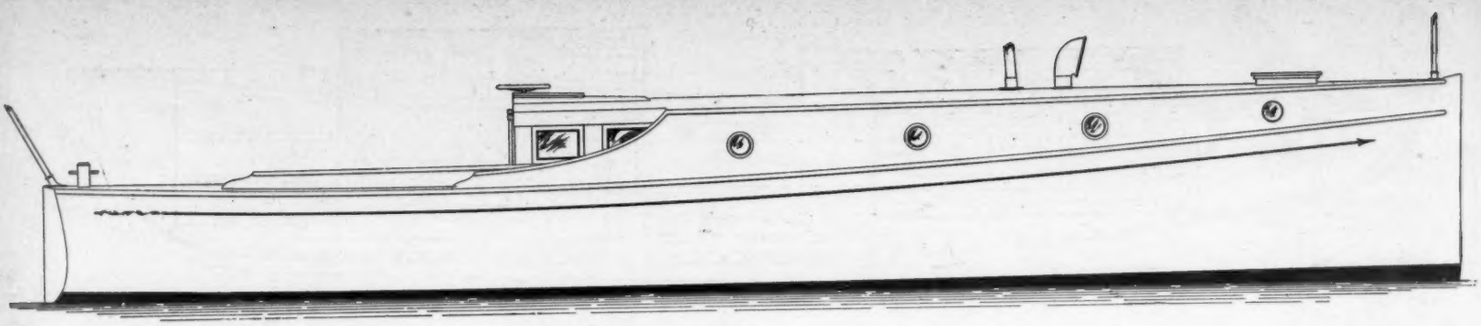
The after-house is laid out in the following manner: The entrance is from the after-deck, the stairs opening into a landing, on the starboard side of which is a large storeroom and on the port side a toilet room. From this landing access is had to two single staterooms just abaft of the engine space, each of these rooms having full-size, built-in berths with drawers underneath, wardrobe, and a bureau with mirror over same.

It is rather remarkable to find on so small a vessel such comfortable accommodations, particularly in view of the fact that there is considerable available deck space, not only aft, but between the two trunk houses. Awnings are to be fitted over the deck



space, and a signal mast is to be carried on the forward end of the after-house. The boat will be completely found in every respect, and will carry, in addition to navigating outfit, a tender, which will be stowed at the top of the after-house.

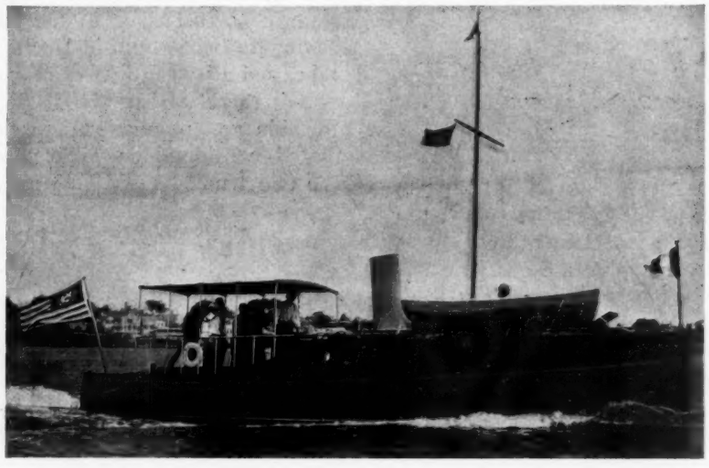




Blue Peter V.

"WHEN may we expect the first boat in the Marblehead race to arrive at the finish off the Crescent Athletic Club?" was the question addressed to Henry J. Gielow on the afternoon of the day on which the race was started. "The Blue Peter V will make it in twenty-seven to twenty-eight hours, easy running," was his reply.

The actual time of the boat over the course of 285 nautical, or 327¾ statute, miles was 27 hours and 34 minutes, cutting down the best time over the course by more than 4 hours. Throughout the race no attempt was made to drive the boat at her top speed, but the motor was regulated to run at 570 R. P. M., and this rate was uniformly maintained through the race, not even slowing down in a heavy storm off Block Island, which lasted for several hours. After a short stop at the Crescent Athletic Club, the boat was taken to Larchmont, and during the entire run of about 30 miles the motor averaged 620 R. P. M. and the average speed was 12.81 statute miles per hour—strong evidence that, if driven to her full capacity, she could have lowered her time in the race by fully two hours. Before starting in the race it was figured that 570 R. P. M. would cover the course in about 27 hours, and the result proved this to be only 2.1 per cent. out of the way.



Blue Peter V was built for Mr. R. C. Seymour, L. Y. C., by the Holmes Motor Company from plans and specifications by Gielow & Orr, of New York. Her principal dimensions are: Length over all, 39 feet 11¼ inches; length on load waterline, 39 feet 10¾ inches; beam, extreme, 8 feet 7½ inches, and draught, 3 feet 1 inch. The lines show an easy form, with the floors carried well forward and aft, giving great seaworthiness as well as interior accommodations.

The hull was constructed in a thoroughly substantial manner; the keel, stem and stern post being of selected white oak; the keelsons, bilge stringers, clamps and engine keelsons of yellow pine; the frames of selected white oak, planed, steamed and bent to shape; deck beams of white oak, with white pine deck, and cedar planking. All fastenings are of copper and composition. There was no attempt to save weight by introducing light or flimsy construction, and the sizes of scantling throughout are most liberal for sea-going purposes.

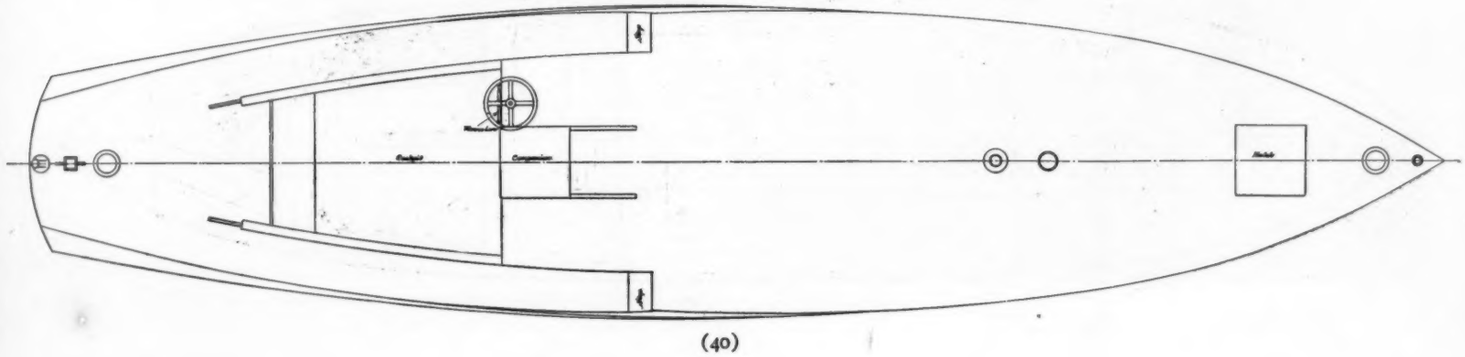
The propelling machinery consists of a regular pattern Holmes motor, having four-cylinders 6 inches in diameter, with 8½-inch stroke of piston. The shafting is Tobin bronze, with manganese bronze propeller. Large gasolene tanks were provided, to give a cruising radius of about 600 nautical miles at full speed.

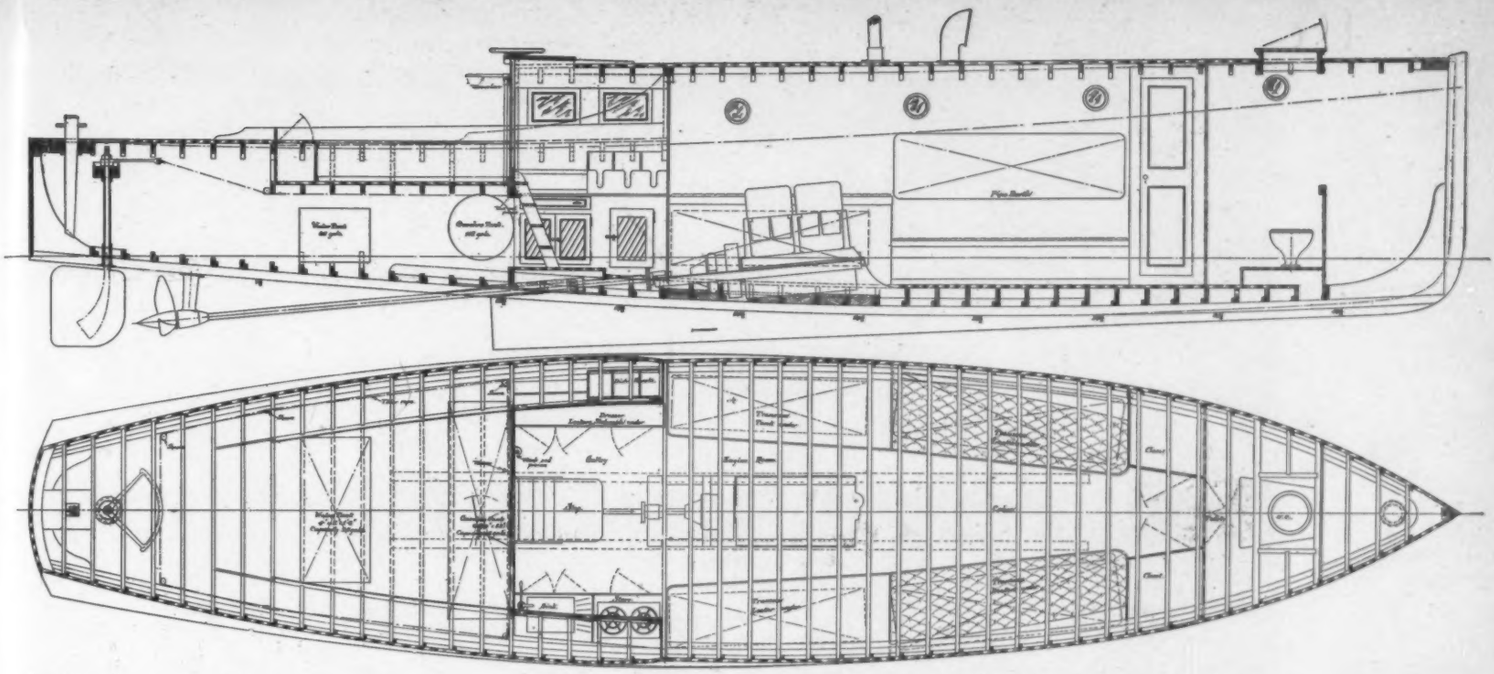
Throughout the season the machinery has worked without a hitch, and the boat has proved an unqualified success.

As will be seen by the sheer plan, Blue Peter V has a plumb bow and a Veed stern. Most of the cabin accommodations are under the raised deck, aft of which is a very short cabin trunk with two plate-glass windows on each side. The cockpit is 6½ feet in length. Below deck she is divided into three compartments. Forward is the lavatory, 3¼ feet in length, full width of the boat. Aft of this comes the main cabin and engine room, on each side of which are two transom seats, with folding pipe berths over them.

There are lockers beneath the two forward transoms, and also under the after transom on the starboard side, the gasolene tank being under the after-port transom. Forward of the main cabin and between it and the lavatory, are two full-length lockers, each measuring 2 x 2 feet, giving a pretty liberal amount of storage room for clothing and supplies.

Just aft of the reverse gear a bulkhead separates the galley



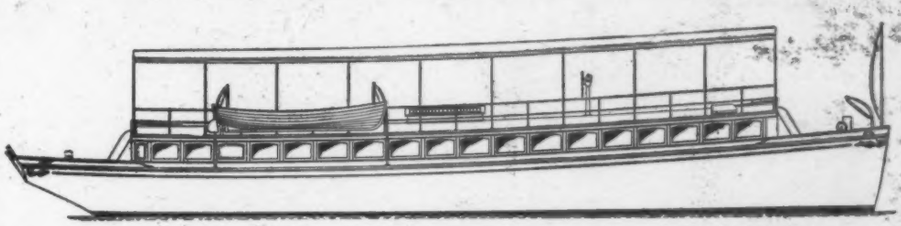


from the main cabin, the arrangement of the boat being such as to allow a central companionway from the after-cockpit—a rather novel arrangement in a craft of this size. The galley, which runs across the full width of the boat, is 4¼ feet in length, and on the port side are dish racks, and dresser with locker shelves underneath. On the starboard side are the stove and sink.

A 112-gallon cylindrical gasolene tank is in the lazarette under the forward end of the self-baling cockpit floor, while a rectangular water tank of 85 gallons capacity is in the same compartment further aft.

A 70-Foot Houseboat

THE accompanying plans show a houseboat designed and built by Julius Peterson, of Nyack, N. Y., for a New York yachtsman, to be used on Chesapeake Bay. She is of rather a novel type, and is equipped with a 40-horsepower, four-cycle motor. Her dimensions are: 70 feet over all, 61 feet 8 inches on the waterline and 16 feet beam. She is built with a slightly rounded stem, and has a broad stern, with considerable overhang.



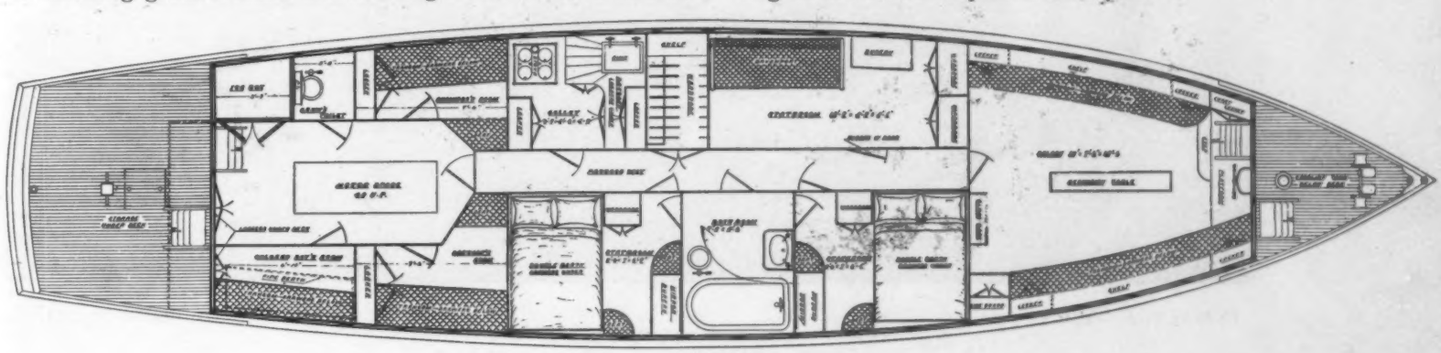
Her raised-trunk cabin and the high freeboard gives her a yachty appearance, and does away with the high, badly-proportioned cabin house, so apparent on most house-boats.

The plate-glass windows in the trunk insure plenty of light and ventilation, and the boat is so arranged that there is plenty of room on the forward and after-decks for the use of the crew in handling ground tackle and mooring lines, while, in addition, there is a hurricane deck of very generous dimensions, shaded by a canopy top.

Her accommodations include a large saloon and dining-room forward, two good-sized staterooms with double beds, and a still larger stateroom equipped with a davenport, which allows the room to be used as either a small saloon or a large bedroom. Her galley is equipped with a four-hole coal stove, sink, and a generous amount of locker space. There is also a large bathroom and a wardrobe of unusual size.

The service quarters of the boat consist of engine room and separate cabins for captain, engineer and deck hand, located aft.

In addition to a wheel and binnacle on her hurricane deck, there is also a second steering wheel and steersman's platform at the forward end of the saloon, which allows of comfortably handling of the boat in unpleasant weather.



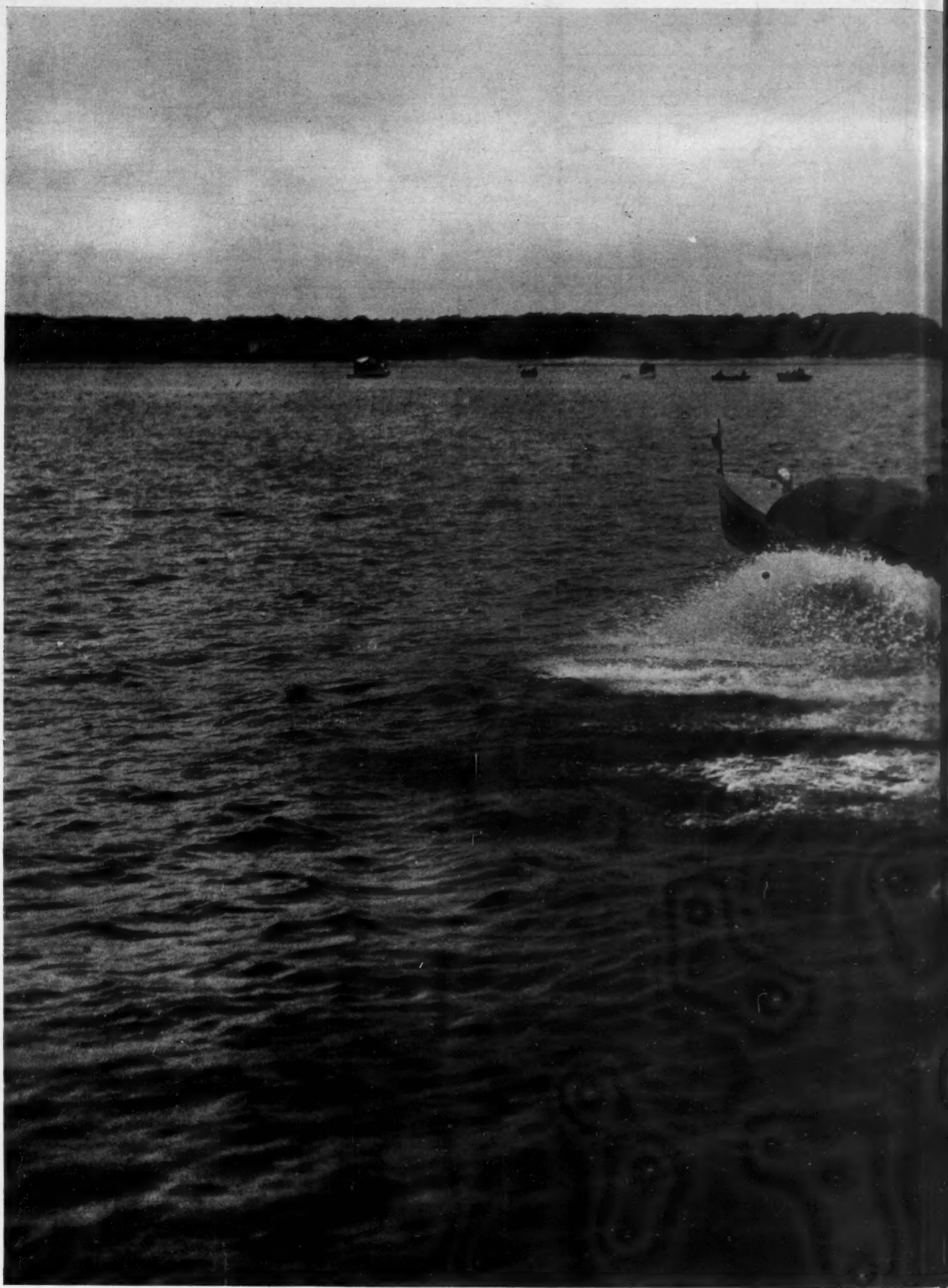
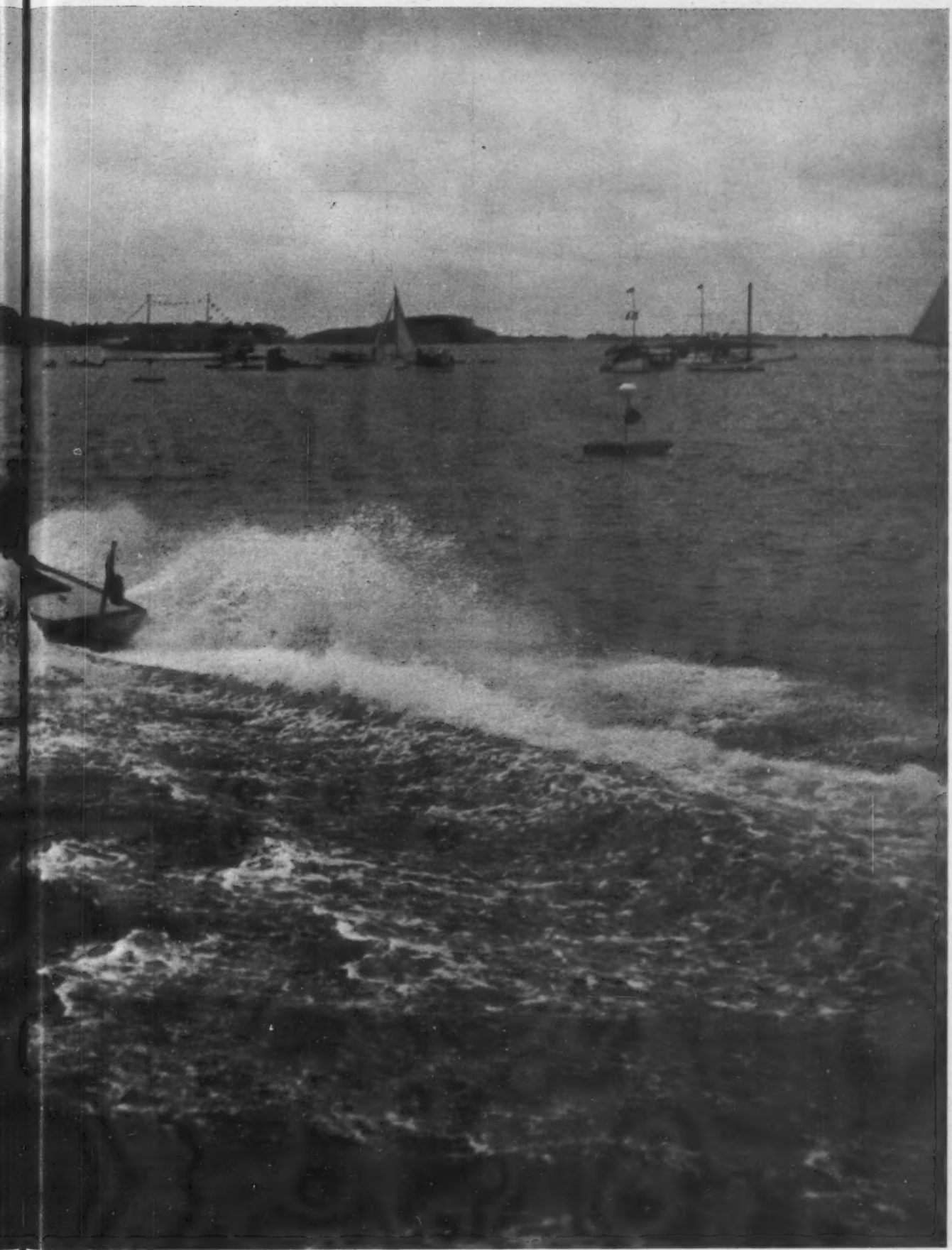
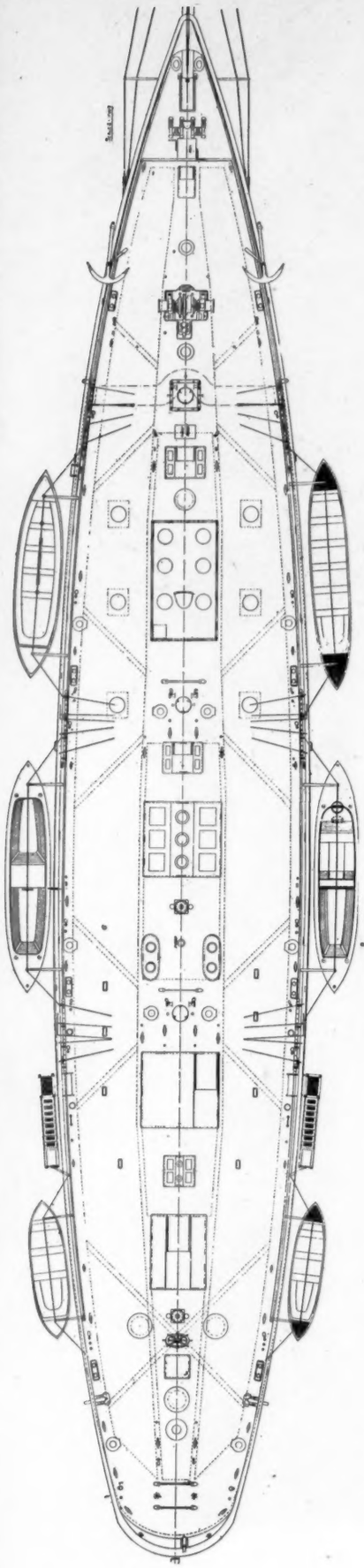


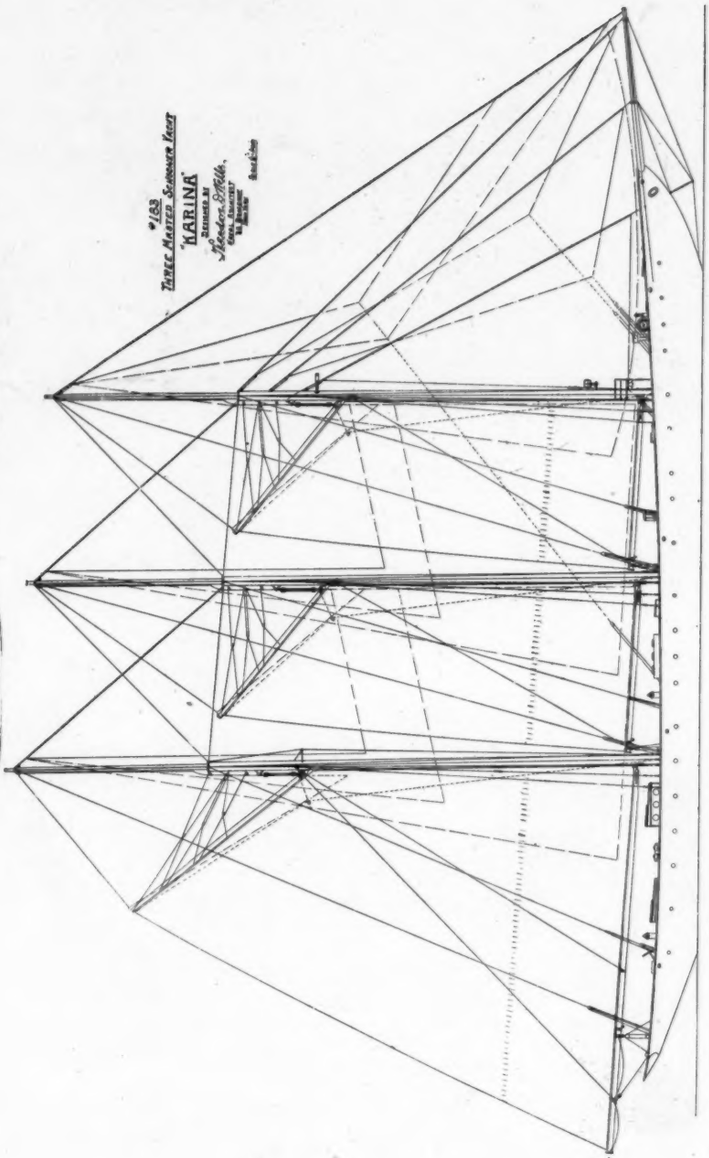
Photo by F. A. Walter.

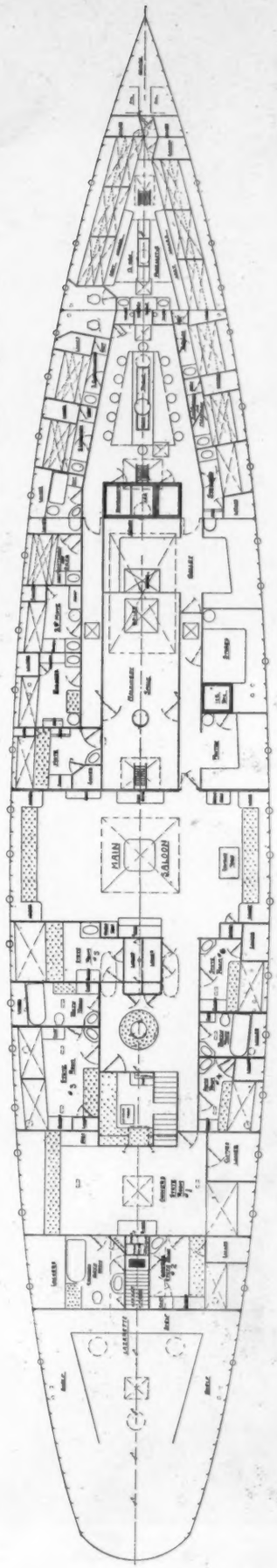
RESTLESS, AT THE INTERNATI RACE



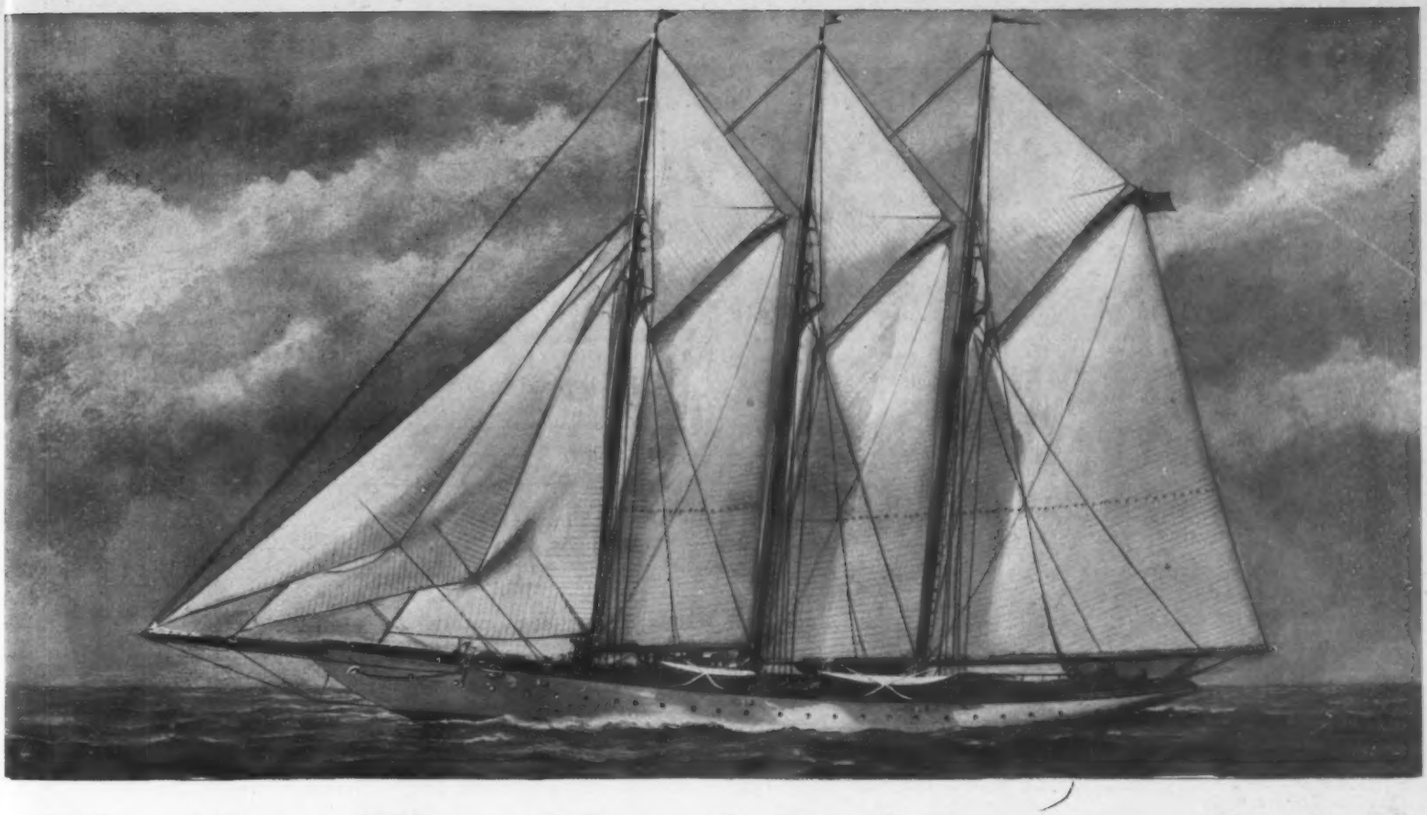
ATI RACES AT HUNTINGTON HARBOR.







DECK, ACCOMMODATION AND SAIL PLAN OF STEEL SCHOONER YACHT KARINA.



The New, Three-Masted Steel Schooner Karina

THERE are not so many three-masted schooners in the American yachting fleet but that the advent of a new boat of the largest size creates a great deal of comment, and the new 198-foot schooner which is now under construction for ex-Commodore Robert E. Tod has already aroused great interest and much speculation as to how she will do against Atlantic and other boats of her size, at present in these waters.

Ex-Commodore Tod has long been known as an ardent off-shore sailor, and it is largely due to his initiative that ocean racing was revived by the Atlantic Yacht Club some years ago. In his old schooner Thistle he made many off-shore cruises and took part in the last trans-Atlantic race for the German Emperor's Cup. The new schooner is from designs by Mr. Theodore D. Wells, Naval Architect, and is now being built at the Staten Island Ship Building Yards, Mr. Wells having complete supervision of her construction.

Built throughout of steel, she will represent the highest product of the modern shipbuilder's art, and she will not only prove extremely able, seaworthy and comfortable, but judging from her lines and sail plan, she should be a worthy contender of Atlantic, Alcyone, Genesee and other vessels of her type. She will be named Karina, and her principal dimensions will be as follows:

Length over all, 198 feet 6½ inches; length water line, 150 feet; extreme beam, 33 feet 8½ inches; depth 23 feet 9 inches; and draft of water, 17 feet. She will have three watertight bulkheads extending the full depth of the vessel, with two other bulkheads from keel to 'tween decks. Her deck is of white pine, and all of the deck houses, which are small and low to minimize windage, are of steel with teak-covered tops. The deck shows an unbroken sweep from forward aft, with no quarterdeck or poop. Her 'tween decks below also run without a break, and here are located the saloon, cabins and crew's quarters. There are two companionways leading from the deck to the quarters below; the after one of these, which is just forward of the wheel, leads directly to the owner's quarters, while the other is just abaft the mizzenmast and leads into a small deck house, containing a smoking or navigating room, with swinging table, desks and broad transoms. From this room a stairway leads below into a vestibule, from which four guest staterooms open. Several very large lockers also open from this vestibule, or from the passageway leading from it, into the main saloon amidships. This saloon is very large, extending the full width of the ship, with broad transoms on either side, and a bookcase, sideboard, serving table and piano at either end.

Opening from the after end of this passageway leading into the saloon is the owner's stateroom. This also occupies the full width of the vessel, there being on one side a built-in bed and a very large clothes locker, and on the other a very wide transom. Opening from this room on the port side is the owner's bathroom, and on the starboard side a smaller stateroom, also for the use of the owner. Between these two rooms is a private companionway to the deck, at the foot of the stairs being a locker for chronometer, charts and navigating instruments.

Forward of the main saloon are the officers' and crew's quarters and galley, with an engine room partitioned off, although for the present no engine will be carried. In this machinery space, however, is a donkey boiler for furnishing steam for the windlass, for running her electric generating set and for the sail winches. In addition to the electric lighting plant, she will have as an independent lighting system, a full acetylene lighting plant, Commodore Tod having found this very satisfactory for off-shore work in the Thistle.

On the starboard side of the passageway leading forward from the main saloon is the pantry, storeroom and galley with a small ice box, while on the port side are rooms for the officers. Then comes a large mess-room with rooms for the quartermasters and stewards, while the forecastle, which is separated from the mess-room by a bulkhead, contains berths for twelve men.

The vessel is laid out with a view to maximum comfort and convenience. Her lines show a well-proportioned boat with moderate overhangings and pleasing sheer. She will carry over 16,000 feet of sail, some idea of the proportions being gathered from the fact that her spanker-boom is 85 feet long, the hoist of the sail being 72 feet.

EDITORIAL

Published by the Yachting Publishing Co.; Oswald Garrison Villard, President; Herbert L. Stone, Secretary and Treasurer

Looking Ahead at 1911.

Well, another year has been logged on the dial of the taffrail-log and left swirling in the fading wake of memory astern, to mingle with other years that have joined the limbo of the past. We've seen a good many of 'em go—we, who have been at the game a couple of decades or so—and we count off the knots of time a little more reluctantly than the youngsters, to whom each successive season seems the best. Yet, looking back over the fair or foul weather of a boating season, we can still see it go without too much regret, and cheerfully keep our eyes on the compass card and the weather leech of the topsail to steer a true course for the voyage that's ahead of us, profiting by the experience which every sailor gains, no matter how many times the voyage is taken.

By and large, 1910 was a good year, full of interest, with a greatly increased number of owners and skippers getting enjoyment out of the greatest sport in the world, and with enough of international racing to add zest to the season. The prospects now for 1911 are equally bright, judging from the plans that are being made and by the events that are still in embryo. The principal international event for the year will be another race for the British International Trophy, which Johnny Bull's sailors seem particularly keen upon lifting. This race is assured, as far as anything in the future can be assured, and from the preparations that are being made on the other side, American owners and designers will have to do some tall hustling to keep the emblem of motorboat supremacy on this side.

The deed of gift is being altered to make the event a series of races rather than a single event, and 1911 will see the greatest motor boat race ever held. We hope that we shall profit by our experience of this year, which was anything but satisfactory, as good sailors do not like to be taken aback more than once. There is extravagant talk of 60-mile-an-hour hydroplanes on the other side, and, while this may be a good deal of a dream, the performance of Pioneer and the development of the hydroplane makes us realize that 45 miles an hour, or over, is within the bounds of possibility.

No international racing in the sailing fleets will be seen in this country, though a team of *sonder* boats goes to Germany to try conclusions with the Teutons; but a number of new boats are building, which should assure the best of sport in home waters. Several new P boats will be out to make it interesting for this fine class, while a number of designers are already at work upon plans for new one-design classes, especially in the smaller sizes. This is particularly gratifying, as a number of these boats are being built for the youngsters just learning to sail; and it is to them we must look for our future interest in yachting, which has to-day so much to pervert it in automobiles, aeroplanes, and like contrivances.

One-design racing is always the most interesting kind, and when the boats are of such a price as not to preclude a number being built, they are always a good thing to stimulate the sport. There are several new large schooners being built, and if Mr. A. S. Cochran should bring his Westward home, it would add much to the season's racing. We should like to see this; and also see the new racing schooner being built in England sent over. It has been many years since a British boat has raced in these waters, barring Sir Thomas Lipton's Shamrocks, and yet during this time many American boats have fought their way through the British circuit. It would do much for the sport if some of these English boats could be seen on this side.

Long-distance racing will again hold much of the interest of 1911, the Havana Race being an assured thing, and both of the Bermuda races, while there will also be a race for the Brooklyn Ocean Challenge Cup, as well as a number of new power boat events on the Great Lakes, which should attract a great deal of interest. One of the criticisms of last year was that there was too much ocean racing crowded into too short a period, so that the dates either conflicted or came so close together as to preclude the possibility of one's entering all the events. The interest in these races is keen, and it would be well to choose the dates with the greatest of care.

So you see that the possibilities are here to make 1911 the best voyage on record, and it only remains for you people who do the actual work to tail on and all heave together.

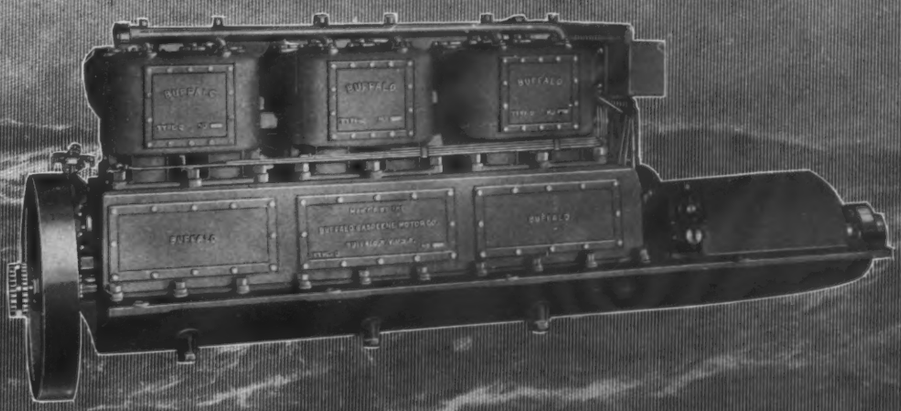
A Class That Has Stood the Test of Time.

Elsewhere in this issue will be found an article on one of the most interesting series of the year, which took place in Massachusetts Bay with boats of a restricted class that was organized over ten years ago. It is not often that a restricted class lives and shows a healthy growth for this length of time, and these little boats (they are 18-footers) have so much to commend them that we should like to see the class adopted in other localities where sailing still maintains.

From the place where it originated, on Massachusetts Bay, the class has spread and is still flourishing, both on Massachusetts and Narragansett Bays, on Lake Erie, at New Orleans, and on Long Island Sound. New boats have been built from time to time, and so wisely chosen were the restrictions that the old boats hold their own with the best of the recent productions of the designers. They are of a handy size, too big to be mere toys, and yet not so large as to require a paid hand. They are not only extremely fast, but they offer, when desired, cruising accommodations for two or three. They can be built for a moderate sum that is well within the means of many yachtsmen, and any club or association looking for a restricted class could not do better than to adopt these rules, with whatever modifications local conditions may make necessary. The boats that have been built under these restrictions are fine craft, offer more for the money than any other class that we know of, and intersectional racing would be almost sure to result from their adoption in other localities.

Buffalos

One, Two, Four, Six and Eight Cylinders
Regular—Heavy Duty—High Speed
2 to 225 Horsepower.



"BUFFALOS" embody every mechanical advancement. They must. We don't dare to cease for a minute our concentration of effort to keep "BUFFALOS" the best in design, material, construction and equipment that contemporary science is capable of. The stake is too big. Solic the work over for a dozen years, wherever there's water there's a "BUFFALO."

Solely on their mechanical merits and the "value-good" they have accomplished, "BUFFALOS" have invaded every country on the globe and won out against the best foreign competition everywhere. And this in spite of the fact that long distance shipping cost and customs charges make a "BUFFALO" come pretty high to the man across the seas.

The cost of shipping half way around the globe and high duties and the buyer has to pay for this never-to-be-barred a "BUFFALO." Last year we exported 498 "BUFFALOS." It's so big a stake to lose. We must keep "BUFFALOS" better than the best competition—foreign and American.

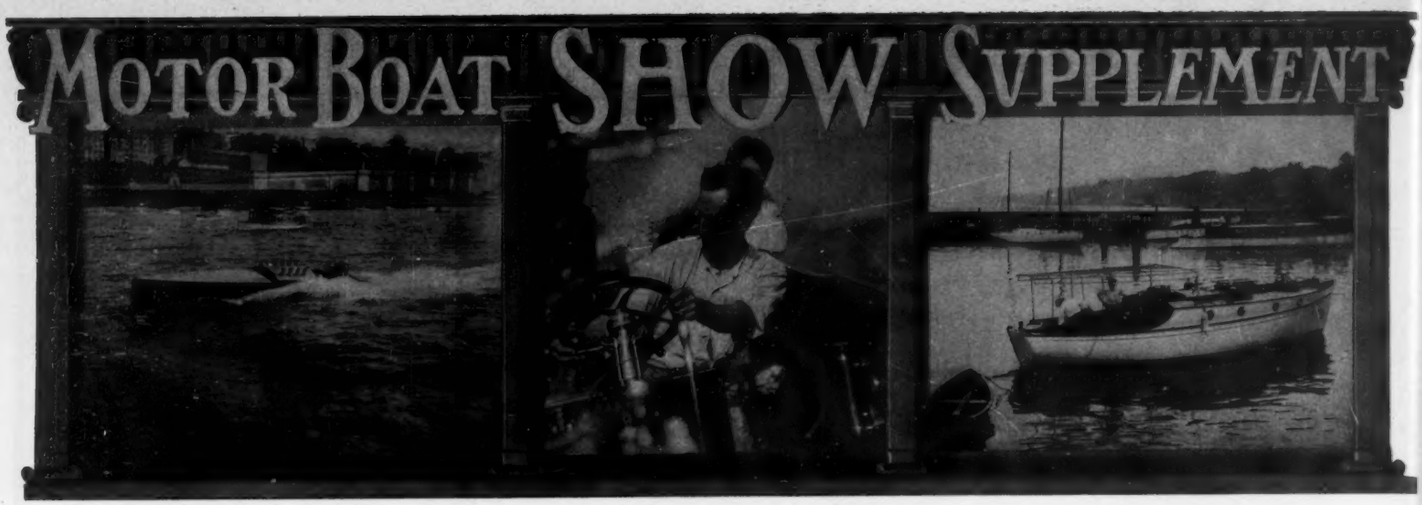
With world wide sources of information on the wants of the twenty-two different "BUFFALO" models in all sorts of boats in all sorts of climates, we are able to incorporate in "BUFFALOS" that nicely balanced combination of scientific mechanical and practical workability which makes the best possible boat power. It is why "BUFFALOS" are known everywhere as

The "BUFFALO" book tells all the details. We're glad to send it free.

BUFFALO GASOLENE MOTOR COMPANY

1260-72 Niagara St., Buffalo, N. Y.

"BUFFALOS" will be at the Boston Show in Spaces 68-72—at the New York Show in Space F on the arena floor



Boston, Mass., January 28 to February 4, 1910

Foreword

Each year as it rolls around sees an increased interest, not only on the part of the enthusiast but the general public as well, in the annual Motor Boat and Engine Shows which have now become so great a part of a motor boating season. The Boston Show, being the first exposition of the year, is always looked forward to eagerly, for here are seen for the first time in the new offerings of marine motors and craft the improvements and refinements which an added year's experience has produced. Here one looks also for new types and new inventions in the way of accessories.

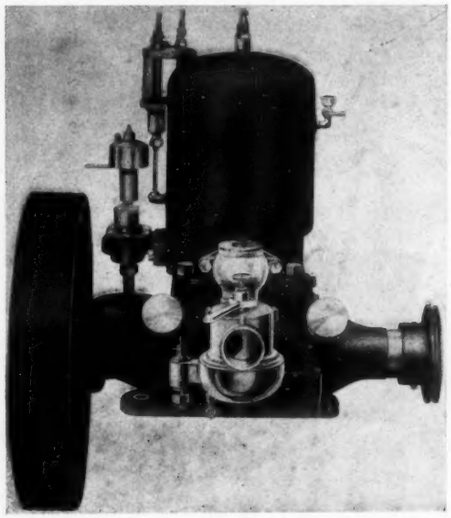
Manager Chester I. Campbell, who so ably directs the affairs of the New England Engine and Boat Association, under whose auspices this show is held, is always on the lookout for novelties to draw the public, knowing that every visitor will probably become a devotee of the sport, and the more "fans," to borrow a baseball expression, the better for the boat, engine and accessory manufacturer.

This year the Boston Show will be held during the week of January 28 to February 4, and at the date of this writing the list of exhibitors is much larger than ever before. If indications are fulfilled the eighth annual exhibition in Boston will present the most diversified line of craft, engines and sundries ever brought together on a similar occasion.

The Boston Show has always had the reputation of being one of the big business getters on the circuit, and this year should be no exception to the rule. Being the only show in New England recognized by the National Association of Engine and Boat Manufacturers, the leaders in the trade naturally make their special offerings at this time. By reason of its position New England should take the lead in motor boating. With its hundreds of miles of coast, and countless snug harbors and bays, to say nothing of its many lakes and rivers, there are probably more motor boats owned in this section than in any other part of the country; and the number is being rapidly increased each year. The show is also the Mecca for those who use gasolene craft for commercial purposes on the New England coast and in the provinces. Naturally, the show is looked forward to each year by these owners who desire to keep abreast of the times and of the latest improvements. The manufacturers realize this, and the result is that all of the space for this year has been spoken for.

Manager Campbell always has a new decorative scheme to enhance the value of his exhibits. A number of special features will also be seen this year, notably the well-known boat Br'er Fox II, a boat of the French hydroplane type, that has gone over 40 miles an hour, and a number of last season's champions.

In the following pages will be found advance information, furnished exclusively to YACHTING by the exhibitors at the Boston Show, with a full description of what these various exhibitors will have on view, and the features to which each desires to call particular attention. The description is authoritative, and while it will undoubtedly interest those who contemplate attending the show, it should prove equally interesting to those who are not able to do so, but who are just as desirous to know what the year 1911 will produce in the way of new engines and craft.



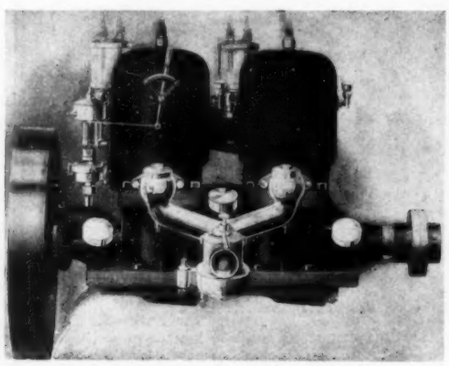
The 1911 Model R single-cylinder Gray Motor, in 3, 5 and 6 H. P.

New Models of an Old Favorite The Gray Motor Company, of Detroit, Mich., will again be one of the principal exhibitors at the Boston Motor Boat Show, where they will have on view their model "R" motors in 3-horsepower, 5-horsepower and 6-horsepower single cylinder, and in 10 and 12 horsepower in double cylinders.

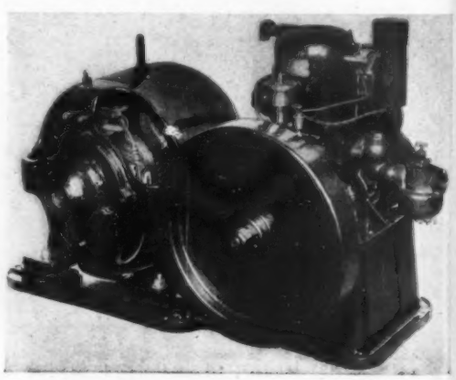
The 1911 Gray model "R" is exactly the same engine as the model "R" of 1910, as far as the principle of design and construction are concerned, though it shows refinement in detail wherever possible. This model "R" has been, and still is, the most popular engine that the Gray Motor Company has put on the market, on account of its extreme simplicity and durability, and it has always been noted for developing power in excess of the rating given by the makers. All of their model "R" engines are equipped with Krice carburetor and have gravity feed oilers.

In the model "T" line the Gray Company will exhibit 7 horsepower, 8 horsepower and 12 horsepower in single cylinders; 14 and 24 horsepower in double cylinders, and 21 and 36 horsepower in triple-cylinder engines.

The Gray model "T" engines have remov-



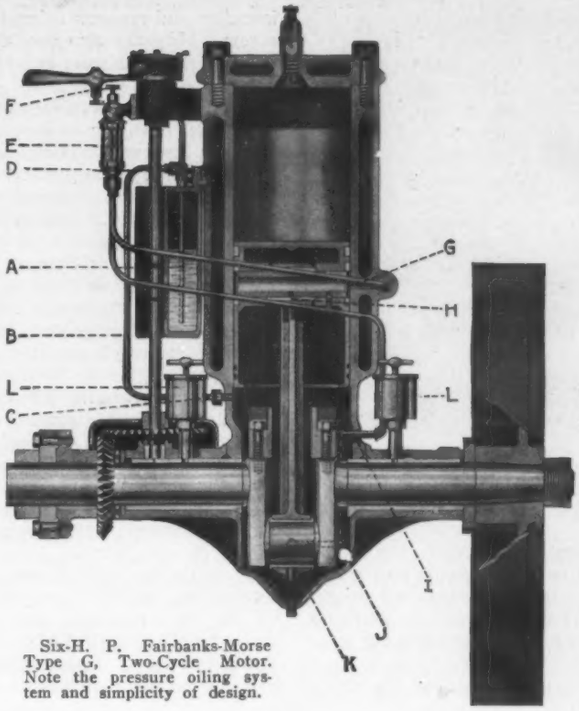
The 1911 Model R double-cylinder Gray Motor, in 10 and 12 H. P.



Gray direct-drive Electric Lighting Plant.

able cylinder heads, which are covered with a steel enameled cap. This feature makes this particular engine very easy to take apart, as the cylinder head can be removed in a very few minutes, allowing complete access to the cylinder. In the model "T" line the Gray Company are advocating lubrication through the gasolene. This system is very convenient, as all that is necessary is to mix about 1 pint of cylinder oil with every 5 gallons of gasolene. The lubricant is taken through the carburetor into the cylinder. Coming in contact with the piston walls and connecting rod by means of the oil grooves and the action of the piston rings, of which there are four, the oil is thoroughly distributed to all working parts. Of course, the individual grease cups which supply lubricant to the main bearings have to be retained. Large hand-hole plates are placed on both sides of the crank case, giving easy access to the crank chamber.

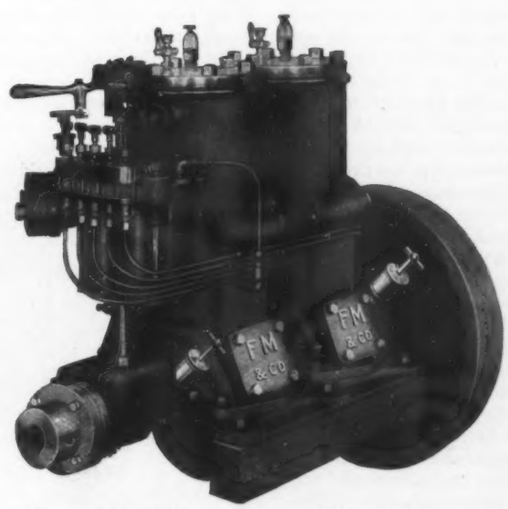
This company will also exhibit a 6-horsepower stationary engine, an 8-horsepower model "T" stationary with vertical governor, and a 4-horsepower electric lighting plant; also a complete line of accessories.



Six-H. P. Fairbanks-Morse Type G, Two-Cycle Motor. Note the pressure oiling system and simplicity of design.

The Fairbanks-Morse Exhibit Fairbanks-Morse & Co., of Chicago and New York, will have a large and interesting exhibit of their marine engines at the 1911 Boston Motor Boat Show. Two sizes, 3½-horsepower, single-cylinder, and 7-horsepower double-cylinder, will be exhibited, showing their type "E" model, with solid head, split base, sight-feed oiler, easy-starting device and many other commendable features.

They will also have one each of their 6-horsepower, single-cylinder, 12-horsepower, double-cylinder, 18-horsepower, triple-cylinder, and 24-horsepower, four-cylinder type "G" engines. The distinctive features of this model are removable head, making working parts easily accessible; pressure oiling system; auto control; efficient and positive cooling system, with plunger or rotary pump; jump-spark or make-and-break ignition, and an easy-starting device which eliminates danger from kick backs and makes a starting crank unnecessary. A sectionalized model of each type "E" and type "G" will be seen in operation, a cut of type "G" model being shown here. Unassembled parts of both types will be exhibited, showing the perfect workmanship, high-grade material, excellent design, and the great care which is used in manufacturing these engines. Both the "E" and "G" types are of the two-cycle, three-port construction, and operate on gasolene, naphtha, petrol or benzine. In the four-cycle type, Fairbanks-Morse & Co. build three sizes—20-horsepower, double-cylinder, 30-horsepower, three-cylinder, and 40-horsepower four-cylinder, which are known as type "B," and one of which will be exhibited at the show. These are built for heavy-duty work, and are operated on gasolene or kerosene. Their exhibit will be novel, attractive and very instructive. Complete and interesting literature will be ready for distribution at their booth.



12-H. P. Fairbanks-Morse Type G, Two-Cycle Motor.

A Complete Ignition System C. F. Splitdorf's exhibit of magnetos, spark coils and plugs at the Boston Show will embrace all parts of the ignition system for motor boats. Now that magneto ignition is becoming so popular, the one bearing the well-known name of Splitdorf will hold special interest for those who are interested in motor craft.

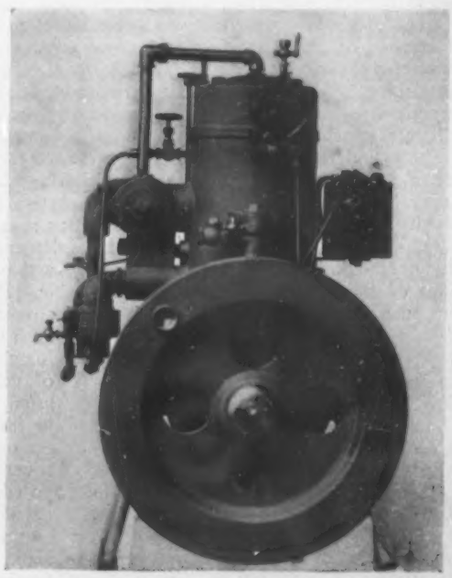
The system used in the Splitdorf magneto is the one having an armature with but one winding, and giving a current of comparatively low tension. The current is discharged through a transformer, having a low and high-tension winding something similar to a regular spark coil. This steps the current up to a voltage sufficiently high to enable it to jump the necessary gap between the points of a spark plug in the compression in the cylinder of the motor. The armature is mounted on two annular ball-bearings.

The Common Sense Spark Plug made by this firm is claimed to be constructed in such a way as to obtain the longest insulating surface possible without increasing the size of the plug itself. To do this a mica bushing is formed on a taper, consisting of lateral windings of mica, composed of sheets the full length of the insulator. This mica bushing is inserted into a small bushing, or nut, and is forced to a solid formation by the central electrode. The mica bushing is so extended on the compression end, and beyond the end of the electrode and nut, as to create an insulating surface of 1 inch. Outside of this, and immediately surrounding the mica bushing and lining the wall of the large steel bushing of the plug itself, a porcelain insulator is used, which increases the insulating surface to 1¾ inches. In addition to this great length of surface, insulated parts are designed to break up the carbon deposit, and prevent it forming a continuous circuit over insulators. The Splitdorf exhibit will contain a full line of electrical and ignition supplies.

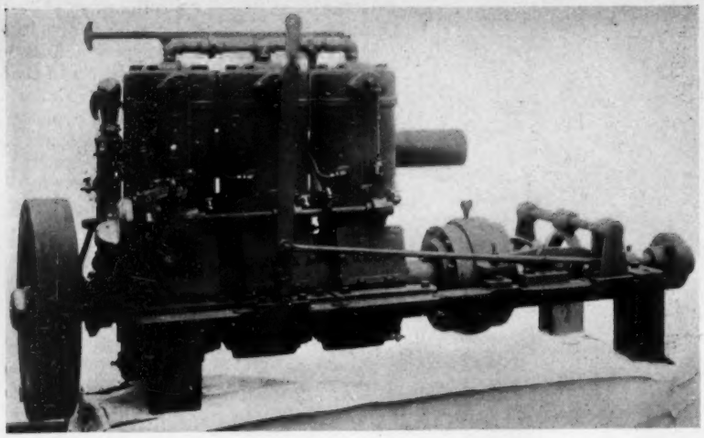
An Engine for Hard Service The Camden-Anchor Rockland Machine Company, of Camden, Me., whose Knox engines are so well known on the New England coast wherever hard and continuous service is required, will have space at the Boston Show, where they will exhibit a full line of their heavy-duty gasolene motors, two of which, a single-cylinder, 5½ horsepower, and a three-cylinder, 22 horsepower, are illustrated herewith.

The line on exhibition will consist of a 3½ and 4½-horsepower, single cylinder, a 9 and 11-horsepower, two-cylinder, and a 22-horsepower, three-cylinder, all being of the two-cycle, three-port type. These are medium weight, medium speed, heavy-duty engines.

The changes that the Camden-Anchor Rockland Company have made in the 1911 engines are: A lightening of the weight a trifle in comparison with last year's engines; an increased compression in the crank chamber, and an enlarged area of the ports, thereby giving more speed and greater power. All of the 1911 engines are now fitted with the model D carburetor, of their own design and make. This carburetor is designed for use with either kerosene, gasolene, alcohol or distillate, and is suitable for and can be attached to any style



5½-H. P., Single-Cylinder Knox Engine, fitted with Model D Carburetor. Develops its power at 500 revolutions. At 600 revolutions will develop 6 H. P.



22-H. P., Three-Cylinder Knox Engine; 5½-in. bore by 6¼-in. stroke. It develops its horse-power at 500 r. p. m. Fitted with Knox Model D Carburetor for using gasolene, kerosene, alcohol or distillate.

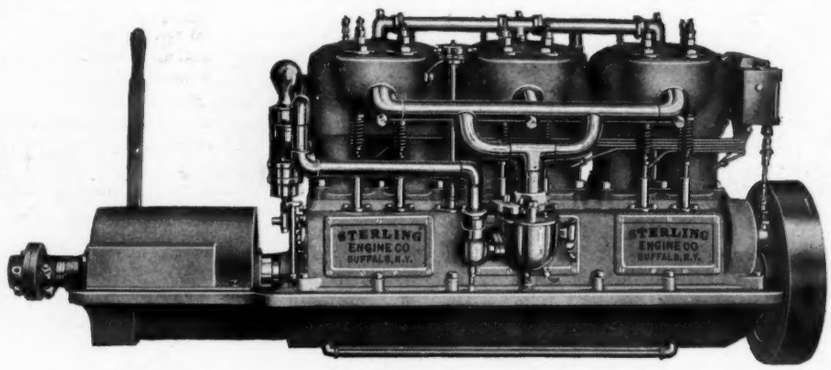
of marine or stationary internal-combustion engine. Another change that will be noted is that their engines are being fitted with a brass piston ring which laps over the ends of the wrist pin, thereby preventing all danger of the wrist pin getting loose and scoring the cylinder walls. This is a feature which will be appreciated by those who have had the cylinder walls ruined by such an accident.

The Camden-Anchor Rockland Company have also changed the rating and price on their engines. Comparing the horsepower of their 1911 engine with 1910, the price has been reduced considerably per unit of power.

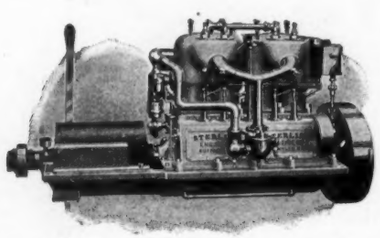
An Exhibit of Sterling Worth The exhibit of the Sterling Engine Company, of Buffalo, N. Y., at the Boston Show will not only be extremely interesting to the motor boat owners, but will be one of the most complete exhibits ever assembled by this company.

In their four-cylinder, four-cycle model B engines one each of the 18-25 horsepower, 25-40 horsepower and 30-45 horsepower will be shown. A brief description of this type of engine will be interesting. It will be noted that they have two ratings—a higher and a lower; the lower rated power is developed at a speed of about 600 revolutions per minute, and the higher rated power at a speed of about 900 revolutions per minute, although for speed work these engines can be run at as high as 1,100 revolutions per minute. The same thing can be said of the six-cylinder model B Sterling engines, which come in sizes of 35-55 horsepower and 45-65 horsepower. One description will suffice for all of the sizes mentioned above.

The cylinders are cast in pairs, an arrangement which reduces the number of joints and the possibility of leakage to a minimum. The cylinders and valve seats are thoroughly water-jacketed, the lubricating system is positive, being mechanically operated, and as moving parts run in oil wear is reduced to a minimum. Valves, both inlet and exhaust, are mechanically operated, insuring absolutely positive action, are placed on opposite sides of the engine and are interchangeable. Push rods are adjustable, and push rod guides are heavy and extend almost the entire length of the push rod. Long guides and adjustable rods reduce the noise of valve operation to a minimum. All gears and cam shaft, in fact everything essential to the operation of the engine, are covered, and nothing is exposed. All parts are easily accessible. The reverse gear is one of this company's own design, and is placed in an extension of the lower base. These engines make suitable power for semi-heavy cruisers, launches and cruisers using twin-screw. They are also very desirable for fast runabouts and racing boats.

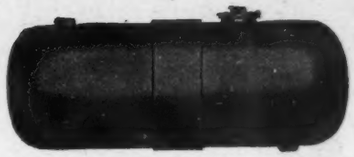


The Smooth 6-Cylinder Model B Sterling Engine. Made in 35-55 and 45-65 H. P.



Four-Cylinder Model B Sterling. Made in 18-25, 25-40 and 30-45 H. P.

The 100-horsepower, eight-cylinder model B engine is one that is used for fast runabouts and racing boats. In design and construction these engines are practically the same as the four and six-cylinder engines described above. It is one of these engines that drives the famous La Truda, which is claimed to be the fastest 32-foot boat in the world, having repeatedly defeated all the boats in her class on the Great Lakes.



A Janney-Steinmetz cold-drawn seamless steel tank.

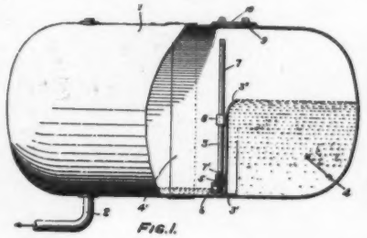
The Sterling Fisherman engine will be shown in two sizes, the 8 horsepower and 12 horsepower. These engines develop their rated power at a speed of 400 revolutions per minute, and make a very desirable, medium, slow-speed engine for hard and continuous work, for fishing boats, family launches and cruisers. The cylinders on these engines are cast in one pair. Cylinders and valve seats are thoroughly water-jacketed; the lubricating system is a positive-operated oiler, mechanically pumping the oil to the sight feed, then pumping to other points of lubrication. Valves, both inlet and exhaust, are mechanically operated, insuring absolutely positive action, all being placed on opposite sides of the engine and being interchangeable. Other features of this engine are practically the same as those of the model B.

Probably the most interesting part of the Sterling Engine Company's exhibit will be their heavy-duty engines. There will be shown one each of the 18-horsepower, two-cylinder, 40-horsepower, four-cylinder, and 60-horsepower, six-cylinder engines. These engines develop their rated power at a speed of 400 revolutions per minute. The same Sterling features are used on these engines as on the smaller sizes, thereby insuring Sterling standard construction. The design and construction of these engines permit of a higher speed than most heavy-duty engines; thus developing proportionately greater power without undue wear on working parts or excessive noise. It is a well-known fact that heavy-duty engines require large bearing on the crank-shaft and pistons in order to stand up under hard work; all these points are embodied in Sterling construction.

A Tank that Will Not Leak One of the exhibits that is bound to attract the particular attention of motor boat owners at the Boston Motor Boat Show will be that of Janney, Steinmetz & Co., of Philadelphia and New York, manufacturers of pressed steel tanks for the gasolene supply. Anyone who has had experience with badly-made and leaky gasolene tanks in a boat will appreciate the advantage of the Janney, Steinmetz & Co.'s seamless, drawn-steel high-pressure tanks.

The importance of high-pressure tanks, especially for an explosive like gasolene, cannot be overestimated, as only by proper handling can the danger of accidents be avoided. Gasolene as a liquid is highly inflammable and vaporizes readily. In its gaseous form it becomes a dangerous explosive when not properly handled.

Any tank that has seamed or riveted joints is at times liable to open up at the seams by the violent motion of the boat in which it is installed, and thereby jeopardize both property and lives. Artificial gas used in illuminating is no more dangerous than gasolene, and yet no one would put seamed or riveted piping in a house or place of business, but would employ good, strong, seamless pipe to eliminate all chance of leakage. All danger can be avoided, and gasolene can be contained as safely as illuminating gas by using strong, cold-drawn seamless steel tanks that are tinned with pure block tin and thoroughly tested. They cannot leak, and therefore remove what is otherwise an ever-present danger. We show here illustrations of both exterior and sectional views of the Janney, Steinmetz seamless tanks, designed for use under pressure, which will be on exhibition at the Boston Show.



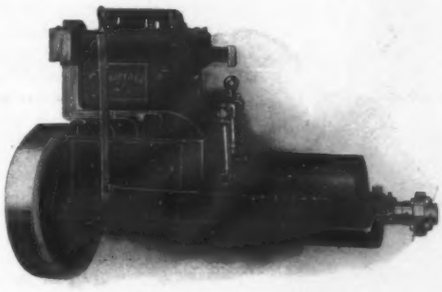
Sectional View of Janney-Steinmetz High-Pressure Seamless Steel Tank.

3-H. P., 2-cylinder Regular Type Buffalo.

A Big Herd of Buffaloes In the same old stamping ground it occupied last year—spaces No. 68 to 72—the Buffalo Gasolene Motor Company, of Buffalo, N. Y., will corral a herd of eight Buffaloes at the Boston Show in Mechanics' Building. Of course, the Buffalo Company couldn't place its entire herd, consisting of twenty-three different models, on exhibition, because even Mechanics' Building has its limitations. For this reason the big 8½-inch by 9-inch T-head multi-cylinder engines in the regular type, the larger heavy duties in six cylinders, and the 225-horsepower, eight-cylinder "V" type racing engine will not be shown.

However, the eight Buffaloes that will be exhibited have been selected from among the twenty-three models with the idea of making a representative showing that will be of interest to the greatest number. They will include engines in the regular, heavy-duty and high-speed types, in both make-and-break and jump-spark ignition, and in two, four and six cylinders. The exhibit will illustrate the belief of the Buffalo Company in the mechanical principle of the multi-cylinder engines, because of their more quiet and vibrationless running. It will be noted that in even so small an engine as the 10 horsepower of the regular type the Buffalo Company uses four cylinders. Even in the heavy-duty line the Buffalo people start using four cylinders with 24 horsepower, while the 54-horsepower heavy duty is in six cylinders.

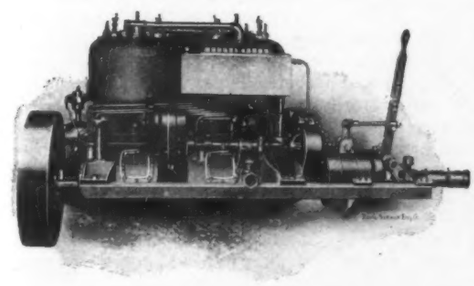
Of the eleven Buffalo models in the regular type there will be three at the Boston Show, one of them a 3-horsepower, 3 inches by 4 inches, which is in two cylinders. Reverse gears have been regularly supplied with Buffaloes for years, built in as an integral and rigid part of the engine proper, and even this small 3-horsepower engine will be shown with a reverse gear. It will have the Buffalo patented mechanical make-and-break that has stood the test of a dozen years. There will also be shown a 10-horsepower, four-cylinder engine and a 20-horsepower, four-cylinder engine of the regular type. There will also be seen two of the seven Buffalo heavy duties—a 12-horsepower, 6 inches by 7½ inches, in two cylinders, and a 24-horsepower in four cylinders with the same bore and stroke. These engines will be shown with mechanical make-and-break ignition, though practically all of the Buffaloes can be had with either make-and-break or jump spark, at the option of the buyer.



12-H. P., 2-cylinder Heavy-Duty Buffalo.

There will be three of the high-speed Buffaloes at the show—the 25-horsepower auto-marine in four cylinders, 60-horsepower 6¼-inch by 6¾-inch engine in four cylinders, and a new Buffalo production in the shape of a six-cylinder, 4¾-inch by 5-inch auto-marine rated at 40 horsepower at 800 revolutions per minute. Unquestionably the Buffalo space will be a popular place during the week of January 28 and February 4.

A Demonstration that Will Convince Valentine & Co., the well-known makers of spar varnish, will again exhibit at the 1911 Boston Motor Boat Show their famous submarine model, demonstrating, as usual, the unique qualities of Valspar—unique because Valspar will actually and effectively resist the action of water, fresh or salt. A new demonstration of this same waterproof quality will be in evidence by the subjecting at the show of the various makes of spar varnish to running water, thus simulating exactly the action of rain and spray on the finished surfaces, and proving that Valspar will not turn white. There will also be on exhibition a set of mahogany panels, showing the effect of the alternate exposure to both water and weather on Valspar, and on thirty-six other makes of spar varnish from all over the world, demonstrating in a most striking manner the value of Valspar for yacht and boat use, as this test is the severest to which varnish, or, for that matter, any other material used in boat building, can be subjected.



Magneto side of 25-H. P., 4-cylinder Auto-Marine Buffalo.

Valve side of 20-H. P. Regular Type Buffalo.

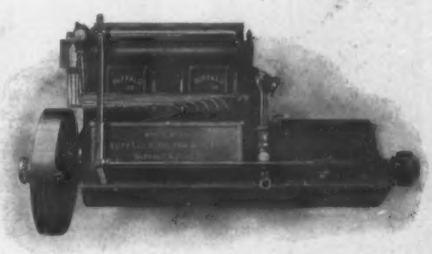
The Valspar enamels, which are high-grade colors ground in Valspar, and which possess the many marked points of excellence of Valspar itself for both exterior and interior use, will be shown on panels. Last, but not least, the new Valspar Liquid Bronze Bottom Paint will be shown for the first time. This preparation, which has been subject to the severest service tests, is a fitting running mate for Valspar. It spreads easily and absolutely clean. Furthermore, it is sold already mixed, thus obviating the trouble of the user having to mix it himself, and as it never becomes solid in the can, what is left over is not lost. These, with Valspar brass preservative and the Valspar boat topping, form the 1911 additions to the Valentine & Co.'s marine list.

The demonstrations at the Valentine booths are always of deep interest to those who want to know, and the educational campaign which Valentine & Co. are carrying on is of great value to boat owner and boat builder alike.

Valve side of 24-H. P., 4-cylinder Heavy-Duty Buffalo.

A New Engine with a Wide Range In space No. 47, at Mechanics' Building, Blount & Lovell, of 96-102 High Street, Boston, Mass., will have on exhibition a line of their four-cycle engines which were placed on the market for the first time last year, ranging in horsepower from 10 to 75, and made in from 2 to 6 cylinders. This firm, having seen for a long time the demand for an engine with a wide range, which would do the work of a heavy-duty motor when required and at the same time be capable of developing power at high speed, set about making an engine that would fulfill these requirements on a reasonable weight, combined with reliability of operation, cleanliness and quietness of operation. For this reason they do not rate their engines, as is customary with engine manufacturers, at the power obtained from the highest speed, but classify them by horsepower according to the number of revolutions. Thus, their 3-cylinder engine they rate at 15 horsepower at 350 revolutions per minute; 25 horsepower at 600 revolutions per minute, and 38 horsepower at 900 revolutions per minute, and these powers the engine will maintain on an economical consumption of fuel.

The engines are of 5½ inches bore by 6½ inches stroke, and have either aluminum or cast-iron base and crank case with reverse gear cast as a part of the engine. The reverse gear is of the all-spur type, and no gears are running when in the "go-ahead" position. A centrifugal ring spins oil directly into the gear case, thus rendering manual attention unnecessary. The clutch is of the cone type, with metal contacts, bronze to cast iron, and by running practically submerged in oil will not cut or stick. The liberal friction areas ensure long life and infrequent adjustment. Realizing that motor boats are frequently condemned as being "such dirty things," and noting that the principal cause of dirt is oil running off of exposed mechanisms, they have kept this fact before



10-H. P., 4-cylinder Regular Type Buffalo.

Perfex Waterproof Ignitor with detachable spark plug.

them in designing an engine that would be not only efficient but cleanly, and great attention has been paid to the lubricating system.

This company, having for many years made a specialty of manufacturing internal-combustion engines for other firms, and in the interval, as the business developed, having installed special machinery for economical production, and trained a staff of mechanics in the building of this type of prime mover, feel that they are qualified to enter the field and place their skill at the disposal of the boat builder and owner.

A "Perfex-ted" Waterproof Ignition The ignition equipment of an internal-combustion engine, being the heart of the whole proposition, has probably caused motor boat skippers and engineers more anxiety than any other part of the mechanism. For this very reason the exhibit of the Electric Goods Manufacturing Company, of Canton, Mass., consisting, in part, of their "Perfex" ignition system, will attract a great deal of attention. For 1911, "Perfex" waterproof ignition has been perfected in minor details. All of its waterproof and power-adding features have been retained, and it now forms what its makers state is the *most* satisfactory and reliable ignition system on the market.

The ignitor has been equipped with new binding post screws, to allow the connection of "Rajah" and "Reliance" terminal wire clips, in addition to the regular "Perfex" connections. The vibrator has been improved. Instead of having the upper platinum point an integral part of the adjustment screw, this point is fixed upon a separate spring, and so does not revolve when the adjustment is changed. Also, it always presents an exactly horizontal surface, because of its patented leveling tongue which forms part of the spring.

As in 1910, the simple operation of turning this vibrator end for end every 50 miles reverses the current through it, and practically prevents all trouble from pitting at the contact points. The catch on the vibrator box has been perfected so that it is now entirely satisfactory. By using two vibrators and two connected single-throw switches a four or six-cylinder engine may be run in sections of two or three cylinders each. This is a very advantageous arrangement, because it enables a boat to be run slowly when approaching a wharf or in crowded or dangerous passages.

During 1910 "Perfex" ignition gave such general satisfaction that the Electric Goods Manufacturing Company are quadrupling their capacity for this season. They do not, however, even then expect to be able to supply the 1911 demand for an absolutely waterproof jump-spark ignition system.

Tempered Drinks for the Thirsty In spaces No. 50 and 60 will be found a novelty that will add much to the comfort on motor boat or yacht, and will go a long ways towards alleviating the thirst on a hot summer's cruise when the ice has given out and the temperature of the cabin is above 80 degrees. This is the "Hotakold" Vacuum Carafe with a tilting holder, the latest product of the Vacuum Specialty Company, of New York, and designed to add to the comfort of the yachtsman or fisherman on boats of every size and kind.

The Vacuum Carafe with holder for attaching to side of stateroom or cabin.

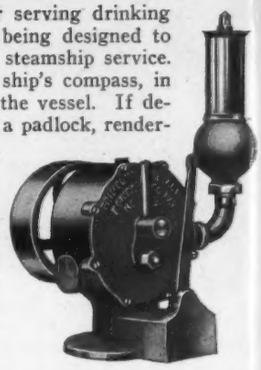
What the vacuum bottle, with its wonderful property of keeping liquids either hot or cold, has added to the comforts and pleasures of automobiling, this much and more has the vacuum carafe done for yachting. By the use of the patent holder with gimbals, this bottle, placed *anywhere* on the boat—in the staterooms, cabin, pilot house, cockpit, under the seat, or even to the mast—is always safe and ready when wanted, with ice-cold water or boiling hot coffee, or whatever it may contain, put in, probably, days before.

Perfex Current-Reversing Vibrator and Condenser.

A few handfuls of cracked ice placed in the carafe before starting on a trip insures ice-cold drinking water throughout the cruise, for it can be filled and emptied many times, the water always being ice cold. As a teapot or coffeepot this "Hotakold" carafe has no equal. Hot tea or coffee placed in it will keep hot for days and will continue to increase in aromatic flavor.

This vacuum carafe, which is one of the strongest and most efficient thermal bottles on the market, is guaranteed to keep cold liquids ice-cold for seventy-two hours, and to keep hot liquids steaming hot for from twenty-four to thirty-six hours. Cracked ice can be kept in it for five or six days. The carafe has recently been adopted by many leading hotels and clubs for serving drinking water in the guest rooms, the tilting holder being designed to adapt it to the special conditions of yacht and steamship service. In this holder the carafe is fastened, as is a ship's compass, in gimbals, and is not affected by any motion of the vessel. If desired, the carafe can be secured in holder with a padlock, rendering it as safe from theft as any other piece of attached furniture.

These carafes are made in three sizes—1 quart, 2 quarts and 3 quarts—in nickle, silverplate, gunmetal and reed; they are *absolutely sanitary*, and never smell or taste of contents previously kept in them. There is no boat, from the luxurious express yacht to the smallest motor boat, that can afford to be without one or more vacuum carafes to add to the pleasure and lessen discomforts of boating.



Trimount Rotary Power Whistle. When installed in a boat the whistle is connected with blower by rubber tubing, permitting the whistle to be placed in any position desired.

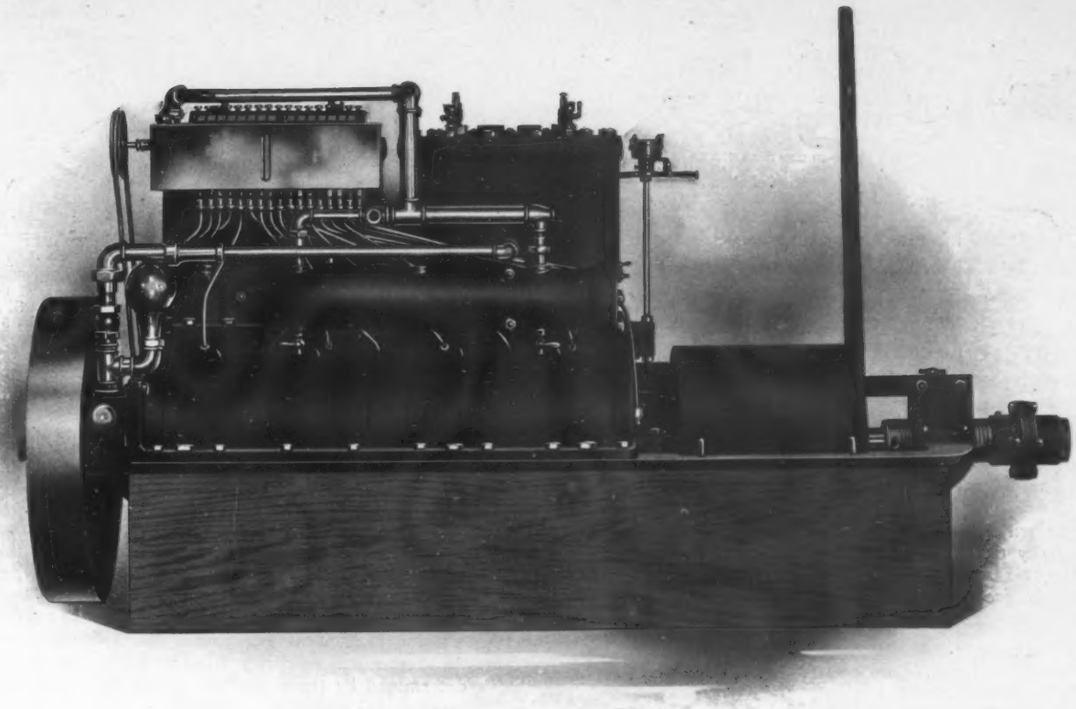
Rotary Whistle Outfit and Bilge Pump The Trimount Rotary Power Company, of 148 Pearl Street, Boston, Mass., will have on exhibition at the New England Motor Boat Show a line of their Trimount Rotary Power Whistles and Rotary Bilge Pumps. For all those that have had doubts whether or not their whistle equipment would pass the government inspector, the Trimount whistle device will prove extremely interesting. This device consists of a small rotary air blower, placed on a bed piece in the bottom of the boat and run by friction with the engine fly-wheel, thus forcing a strong current of air through a pipe or rubber tubing to the Trimount whistle, which may be placed in any part of the boat desired. A small upright lever is the means by which the driving wheel of the blower is brought in contact with the fly-wheel of the engine, a whistle cord being attached to this lever and carried to the steersman's wheel. Upon relaxing the cord the driving wheel on the blower immediately releases itself from the engine fly-wheel, so that except when the whistle is in operation the blower is at rest. This blower runs at a speed of from 500 to 2,000 revolutions per minute; by reason of the difference in size of the fly-wheel of the engine and the fly-wheel of the blower, and the greater the number of revolutions, the more air the blower generates and the louder is the tone of the whistle. It will blow for any length of time, and will make a noise that will carry as far as any steam whistle of equal size. There is nothing to get out of order, so that the whistle is always ready for use, there being no tanks to keep filled or danger of over-compression.

The rotary bilge pump is a small, compact disc-like cylinder containing the mechanism, and is worked by a small detachable crank on the front face of the cylinder. This pump can be attached to the coaming or to a bulkhead, with a pipe running to the bilge, and a flexible rubber pipe from the discharge vent, which may be led over the side. This is equally applicable to sailboats as to power boats, and does away with the back-breaking pumping with the old type of plunger pump. It is made of bronze metal throughout, and as there are no parts to wear or break it will stand hard service for a long time. By turning the crank to but 85 revolutions per minute the No. 1 size will discharge 10 gallons per minute without the loss of a drop of sweat by the operator. The No. 2 pump will discharge 20 gallons at the same number of revolutions. The No. 2 pump also comes mounted on a base, for placing in any convenient location on the floor of the boat.

Turbine Type of Propellers for Increasing Speed In these days, when so much in the way of speed depends on the design of the propeller, the exhibition of the Hyde Windlass Company, of Bath, Me., will undoubtedly prove of much interest to the motor boat enthusiast at the Boston Show. The results obtained during the past season with the Hyde Turbine Type Propeller, wherever it has been used, have satisfactorily proved their efficiency, and many are now being ordered for next season's fast boats. These propellers are made of the same manganese bronze that is used in the propellers furnished on the battleships and torpedo boat destroyers in the United States navy, and are designed primarily for developing the highest speed.

Trimount Rotary Hand Bilge Pump No. 1.

They are properly balanced, and so careful has been their design that the Hyde Windlass Company claim they run with the least possible vibration. They are made in either right or left hand, and in



Ideal 25-H. P., 4-Cylinder Engine. Port side, showing location of exhaust.

diameter and pitches to suit every condition for which there might be a call, and all those interested in the propeller problem will find the Hyde Windlass Company reservation an interesting place.

An Ideal Engine Equipment V. J. Emery, of Wollaston, Mass., manufacturer of the Ideal Marine Gasolene Engine, will show a line of these well-known four-cycle engines in space No. 63. The line will consist of 16, 25 and 40-horsepower engines, all of four-cylinders, and possibly a 12-horsepower, three-cylinder motor. One of the principal features of this motor is the design of the exhaust port, which runs directly down into an expansion chamber between the cylinders and into the manifold, which is at the base of the cylinders, where it is out of the way and is much less unsightly than when located near the top of the motor. This method condenses the hot, exhausted gases, thereby reducing back pressure on the engine and greatly minimizing friction. The result is an absence of vibration and noiseless operation of the engine. The cylinders are cast in pairs, with removable heads, and are cast from semi-steel, a metal especially suited to withstand the explosive shock to which it is subjected in an internal-combustion engine.

Realizing that it has always been a matter of great concern on large four-cycle engines to secure a good bearing metal that would not fuse or bind the crankshaft after the bearing became overheated, Mr. Emery has designed a built-up bearing consisting of bronze and babbitt, dovetailed into each other. The lower half of the bearing is of bronze, with the exception of the sides, which are of babbitt. The upper half of the bearing is entirely of babbitt. The bronze thus takes the down thrust of the piston, on which there is the most severe strain, while the babbitt on the top and side eliminates any tendency of the bearing to bind.

All sizes above 4 horsepower are fitted with a reverse gear and clutch of a perfect mechanism for its purpose—forward neutral and reverse motions being obtained with very little effort. The operating gears are of steel and bronze, always in mesh, the whole being a unit in connection with the engine. The Ideal Engine is a medium-speed, medium-weight engine for all-around work where reliability is required, the range being from 450 to 700 revolutions per minute.

Every Ideal Engine sold is covered by as broad a guarantee as it is possible to give, and the makers say that they are prepared to stand behind it at any and all times.

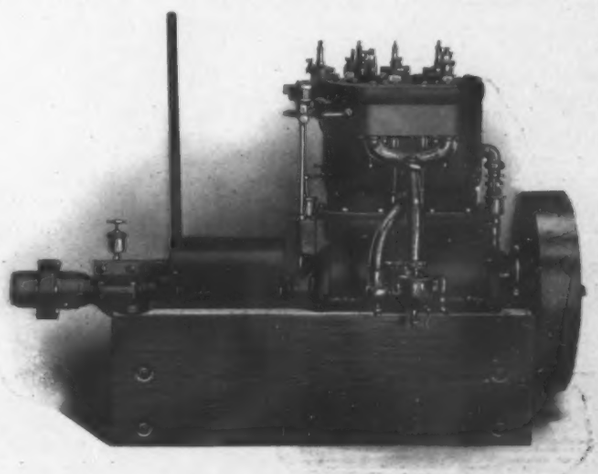
Juice for the Ignition System Practically every motor boat owner has need for dry batteries aboard of his boat, and the exhibition of the National Carbon Company, of Cleveland, Ohio, at the Boston Show will interest every one, and especially those who use dry batteries for running the ignition system. The exhibit will consist of a complete line of Columbia Multiple Batteries. These batteries are claimed to be absolutely waterproof, essentially damage proof, and have already proved themselves a great boon to power yachtsmen. In addition to this line of batteries the National Carbon Company will also exhibit a full set of Columbia ignitor dry cells.

Electrical Specialties for the Motor Boat In space No. 45, the A. S. Campbell Co., of 284 Commercial Street, Boston, Mass., a recently-organized concern for the manufacture of electrical specialties for motor boats, will have on exhibition a full line of new features. Mr. A. S. Campbell, the head of the new concern, realizing that several motor boat and auto specialties which he had invented and patented had met with the ready approval of the trade, has severed his connection with the firm of A. S. Morss Company, and organized the A. S. Campbell Company, in order to attend exclusively to the manufacture and distribution of his specialties. Though the A. S. Morss Company will continue to sell these goods as in the past, by the organization of the A. S. Campbell Company all patent and manufacturing rights will be assumed by this latter firm, and it will be their endeavor to attain an even better degree of perfection and utility than formerly. These goods will be sold under the trade name of "Cello," instead of the names under which the Morss Company sold them.

Among the special and new features which this firm will show at the Boston and New York Shows is the new "Cello" Combination Binnacle, which has its batteries self-contained and which may be moved about at will without the annoyance of connecting or disconnecting batteries.

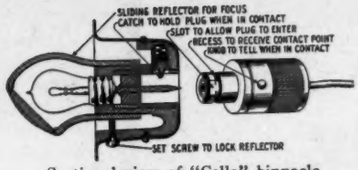
Another special feature is to be seen in the improved "Cello" Searchlight, which has a new ball and socket joint that solves effectually the problem of adjustment. With this joint the searchlight may be instantly thrown into range at any angle and securely fastened, or it may be as instantly released and used as a hand-lamp. The waterproof plug features are retained, but new processes of manufacture have doubly guaranteed their effectiveness.

Boat owners are unquestionably considering with favor the use of electric running lights as against old-fashioned oil lights, and the waterproof deck plugs for electrically connecting running lights with the main lighting system will be fully demonstrated. These met with immediate approval



Starboard side of 2-Cylinder, 8-H. P. Ideal Motor.

"Cello" electric binnacle lamp operating on a dry battery.


SLIDING REFLECTOR FOR FOCUS
CATCH TO HOLD PLUG WHEN IN CONTACT
SLOT TO ALLOW PLUG TO ENTER
RECESS TO RECEIVE CONTACT POINT
GROOVE TO TELL WHEN IN CONTACT
SET SCREW TO LOCK REFLECTOR

Sectional view of "Cello" binnacle lamp. Made by A. S. Campbell Co.

in 1910, and large orders have already been placed for them in 1911.

The company will market this season a new battery set, called the "Cello" Improved, which has the great advantage of being hermetically sealed without the aid of heat. Inasmuch as heat, when applied to batteries, destroys their life, the importance of this process is at once realized, and it is a demonstrated fact that this set will show a greatly increased service. This is the only battery set made which is sealed without the aid of heat.

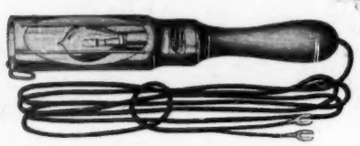
The "Cello" Hermetic Cases will also have new features this season. The new models will be specially designed to contain the spark coil in addition to the batteries. By this arrangement all possibility of short circuiting is avoided and absolute protection given these important parts. These cases will be made in several styles, which are suited to cover the needs of the trade.

Stifle Your Exhaust One of the principal drawbacks to the pleasure of motor boating has been the ear-splitting noise made by the exhaust of the spent gases. So great has this nuisance become in some localities, where the owners took no pains to muffle the explosions, that laws have been passed requiring underwater exhausts or other contrivances for lessening the noise.

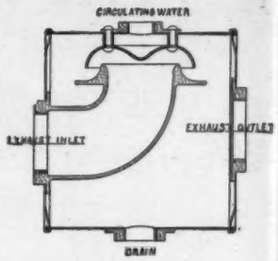
The Thermex Silencer Company, of 85 Sumner Street, East Boston, Mass., will show in space No. 81 a device for effectively throttling the noisy exhaust. This is made in two styles, one being of cast iron, weighing about 19 pounds, for use on the ordinary medium-speed engine and runabout, and the other made wholly of bronze and sheet copper, with all joints double seamed, for use on high-speed motors wherever saving in weight is a requisite.

The sectional cuts shown herewith explain the principle on which this silencer works. The silencer has an unobstructed exhaust inlet of increasing area to an expansion chamber of ample size. Over this inlet nozzle to the expansion chamber is placed an umbrella-shaped deflector, which discharges the exhaust gases around its edge in a thin sheet. All circulating water from the engine is delivered over the center of this umbrella deflector, from the edge of which the water flows in a thin sheet, causing perfect mixture of water and exhaust gases, thereby reducing the temperature and volume of the exhaust gases to the lowest degree. The lower edge of the umbrella is below the top of the inlet nozzle, so that water from the circulation inlet cannot flow into the exhaust passage to the engine. In the process of cooling the exhaust all the odor and solid matter held in suspension in the exhaust is precipitated by this circulating water, and is carried out through the drain pipe in the bottom of the expansion chamber, so that only a slight spray is carried out through the exhaust outlet, and the engine is subjected to the least possible back pressure. The exhaust inlet nozzle, having its delivery at the highest point in the expansion chamber, and the drain pipe in the bottom, absolutely prevents any water that may flow back through the exhaust outlet, when not in use, from passing into the exhaust passage to the cylinder. The size of the cast iron silencer is 10 inches in length by 7¼ inches in diameter, while the bronze appliance is 6¼ inches in length by 6⅝ inches in diameter.

A Royal Line of Two and Four-Cycle Motors At the exhibition by the New England Engine & Supply Company, of 40 Washington Street, North Boston, Mass., will be seen a complete line of engines so diversified as to meet all requirements of the motor boat user. The exhibit will consist of a full line of Royal, two-cycle, heavy-duty, make-and-break marine engines. One of the principal features of the Royal engine is its accessibility and the ease with which it can be dismantled in case of necessity. If anything gets "out of kilter" with a Royal engine you don't have to fuss around through small hand-holes, but can easily dismantle the engine to get at the part requiring attention, taking only twelve minutes for the entire process. By loosening a few screw caps at the base, and unscrewing the water connection, the cylinder may be lifted from the bed, allowing complete access to every part without disturbing the mechanism in the slightest. These engines are built with either make-and-break or jump-spark ignition, and in either one or two cylinders in powers ranging from 2½ to 15. The Royal Equipment Company, makers of the Royal engine, aim at strength and rigidity in construction, while all useless weight is carefully avoided. Working parts are constructed of the highest-grade material, and all parts are built to standard size and are interchangeable.



"Cello" electric hand lamp or trouble finder.



Sectional view of bronze and copper Thermex Silencer for speed boats, weight 5 pounds.

The other half of the exhibit of the New England Engine & Supply Company will be a full line of Lamb, four-cycle marine engines, built by the Lamb Boat & Engine Company, of Clinton, Ia. This line will consist of their type R 12, 18, 24 and 40-horsepower, in 2, 3, 4 and 6 cylinders, respectively; and type H in 20, 30, 40 and 60-horsepower, of 2, 3, 4 and 6 cylinders, respectively. These engines are medium speed, the type R varying from 500 to 550 revolutions per minute and the type H from 450 to 700.

The Lamb Engine Company call particular attention to their water circulating system, the method of lubrication and the valve mechanism, claiming that the degree of efficiency of a gasolene engine is largely determined by these factors, and by the knowledge gained from actual experience in engine manufacture, rather than by theory.

"Cello" hermetic battery case for holding six dry batteries.

A Big Fleet of Atlantics The exhibit of the Atlantic Company, of Amesbury, Mass., at the Boston Show will comprise all their regular line of Gurnet dories, 18½, 20½, 23½, 25½ and 30 feet in length, together with the semi-speed clipper launches of 25½ and 30½ feet.

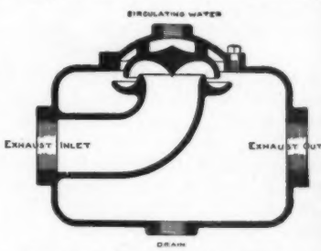
In addition to these well-known models the Atlantic Company will exhibit a new 16-foot dory skiff, equipped with 3-horsepower motor and priced at $165, which is destined to become very popular wherever a shoal-draft boat is required. This new skiff shows the same high-grade workmanship as the other Atlantic boats.

The boats exhibited will be equipped with the regular Atlantic type of two-cycle, three-port engine for the smaller boats, while in the larger sizes the Atlantic Special three-port, two-cycle engine will be used.

Conforming with the usual practice the Atlantic Company will also have on exhibition a high-speed runabout that will make 25 miles per hour with 40 horsepower, handsomely finished in natural mahogany, which will, as usual, attract those who care for the fast and classy things in the motor boat line.

The construction and the finish of the Atlantic Company's boats is so thorough and workmanlike as to thoroughly delight the man who knows a good boat when he sees one. One of the strong points of the construction of the Atlantic boat is the method in which the bilge strake is cut out in sufficiently heavy planking to allow being of the same thickness as the other planks after being hollowed out, instead of being thinner at the turn and less liable to check or split. The Atlantic boats, being built in large number, with a maximum of careful machine work, allows accurate fitting to be obtained at a cost impossible for anything like the same degree of workmanship when a small number of boats are turned out individually by hand, which accounts for the moderate price, considering the workmanship, which these Atlantic boats may be obtained for.

A Detachable Motor The Boston representative for the Evinrude Motor Company, Mr. W. S. Hiatt, will have on exhibition at the Boston Show one of the Evinrude Detachable Motor Outfits for use on boats and skiffs where, for any reason, it is impracticable to install a motor in the boat. This motor can be attached to the heaviest, slowest, flat-bottom boat in existence, transforming it into an easily navigated launch. It weighs but little, and can be easily shipped from place to place, as desired, in



Sectional view of cast iron Thermex Silencer. Weight, 19 pounds.

23½-foot Atlantic Gurnet Dory. (Page 54.)

30-foot Atlantic clipper launch with spray hood.

Side view 30-foot clipper launch. Moosehead Lake, Me.

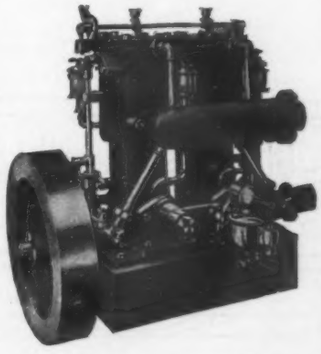
the event of its being used by sportsmen or fishermen. The Evinrude motor is a two-port engine. This insures easy starting. Being clamped to the stern of the boat, it requires no special fittings, and as the propeller may be raised or lowered it is adapted to any draft of rowboat. The cylinder is of 2½ inches bore by 2½ inches stroke, with head and water-jacket case in one piece. The propeller is 9 inches in diameter, and made in a shape to be practically weedless. The engine is well balanced and compact, and uses the tank lubrication, doing away with the necessity of oil or grease cups. A tiller, which swings the propeller wheel, enables the skipper to steer the boat by means of the engine.

With this little engine any rowboat may be converted into a power boat at a minimum of expense, without the trouble involved in the construction of engine bed and boring for the shaft.

A Reliable Reverse Gear In space No. 106 the Evans Stamping & Plating Company, of Taunton, Mass., will have on view an entire line of reverse gears in sizes from "O" to their new model "F," and if anyone is interested in knowing what kind of a gear they are buying there will be no better chance to find out than at this exhibition. The Evans Stamping & Plating Company will have also a complete exhibition of the dissembled parts of their reverse gear, showing the entire construction and the manner in which the gear is assembled and manufactured. There will be a representative of the company in charge to explain thoroughly the points of the Paragon Reverse Gear.

A Complete Line of Accessories One of the largest exhibits at the show will be that of the well-known Boston firm of A. S. Morss Company, occupying spaces No. 50 and 60, the same booths that they had at last year's show. In the exhibit will be a general line of boat hardware and accessories, such as lights, electrical fittings, anchors, steering wheels, yacht stoves, waterproof batteries, etc. Among the specialties to which they will draw particular attention will be the Hitchcock Automatic Bilge Bailer, which, as its name implies, is designed to keep the bottom of the boat free from water while she is under way. This bailer was evolved by a man who had been up against the wet boat proposition good and hard, and he has turned out a little device that the owner can adjust himself to the bottom of his boat, and which is so simply constructed that it will never get out of order. It requires no power of any kind to run, and the cut of it here shown will explain the principle on which it works. It is attached to the hull through a 1½-inch opening in the garboard strake. The ball valve (*f*) in opening *C* is held in place when the boat is at rest by the upward pressure of the water. When under way a suction is formed in the chamber *C*, releasing the pressure on *f*, and the water from the bottom of the boat is drawn out through the opening *BB*, keeping the bottom of the boat absolutely dry. To dispense with the automatic action cap *D* may be screwed either up or down, which positively opens or closes the opening. This type is used for fast boats only, though the same concern makes another type of bilge bailer for boats of slower speed. The Morss Company will also show their Skene chock, which is so designed as to prevent the line or cable from ever jumping out of it, as a glance at the illustration herewith will show. These chocks are made for both bow and stern use. A patented chain steerer for motor boats will also attract attention, as it proved to be one of the best steering attachments for motor boats last year. The Morss cowl ventilator will also be one of their features. This type replaces the old hood ventilator, and is made in a die with welded, flush seams, making practically one piece of metal. They are therefore stronger and more durable than those made in galvanized sheet iron and riveted. They are fitted with a swivel joint, and are screwed into a deck plate fastened to the deck.

This company will show so many articles of use to a motor boat man and sailor that a complete description of them cannot be attempted here, and their booth will undoubtedly attract large crowds.



Double-Cylinder Royal Engine, showing Inlet and Exhaust Manifold.

A Dory for Hard and Continuous Service With the growing demand for the dory type, for use in working boats and in pleasure boats where a serviceable, seaworthy craft, capable of standing hard knocks, is required, every exhibition of this type is sure to hold the interest of motor boat lovers.

The Cape Cod Power Dory Company, of Wareham, Mass., will have an interesting line of dories at the Boston Show. This line will consist of one of their 22-foot smooth-planked dories, fitted with a 5½-horsepower, jump-spark motor with reverse gear. There will also be one of their 20-foot Special smooth-planked dories, fitted with a 3½-horsepower Palmer motor. Both of these boats are planked with cedar over a hardwood frame, and are galvanized fastened. On both of these boats a small cabin is built over the motor, which is installed in the extreme after-end of the boat, thus thoroughly protecting the engine from the weather, and at the same time keeping the boat entirely free from any grease or oil which the engine may throw off. The cabin, being at the extreme after-end, takes up little room and allows a large seating capacity in the boat. In addition to these two dories the Cape Cod Power Dory Company will exhibit a 12-foot rowing skiff with cedar bottom and sides. Realizing also the value of a good pump, especially in open boats, it has placed on the market a hand bilge pump of novel design and of good capacity, which will be shown at their exhibit at the Boston Show.

This company also makes a whaleboat launch, designed after the lines of the whaleboats used by the New Bedford whalers, knowing that they would make ideal boats on account of their easy lines, insuring seaworthiness and speed. These boats are made in one size only—30 feet in over-all length. (See page 56.)

An Exhibit of "Feather-weight" Elbridges In spaces 65-B and 66-A will be seen a new line of Elbridge Engine Company's products, exhibited by their Boston agency. The type chosen for exhibition is what is known as the Featherweight. This line consists of the following sizes, all with a 4⅝-inch bore and 4½-inch stroke:

One-cylinder, 10-15 horsepower, 60½ pounds for aero use, 64 pounds for marine.

Two-cylinder, 20-30 horsepower, 98½ pounds for aero use, 105 pounds for marine.

Three-cylinder, 30-45 horsepower, 138½ pounds for aero use, 150 pounds for marine.

Four-cylinder, 40-60 horsepower, 178 pounds for aero use, 200 pounds for marine.

Six-cylinder, 60-90 horsepower, 225 pounds for aero use, 250 pounds for marine.

These engines develop the lower power at 1,000 revolutions per minute and the higher at 1,500 revolutions per minute. They are all made with a spun brass water-jacket, and are, without doubt, the neatest appearing line of motors which are being built to-day. These motors in the aeronautic field have been proved to be the equal of the best of the foreign-made engines.

An Eyrie for the Eagles In spaces 54, 55 and 56 the Boston agency of the Eagle Engine Company, of Newark, N. J., will show the well-known line of two-cycle engines made by this company. The exhibit will include the following twelve sizes for marine use, made last year:

A-1½ horsepower, one-cylinder, make-and-break, 85 pounds.

B-3½ horsepower, one-cylinder, make-and-break or jump spark, 180 pounds.

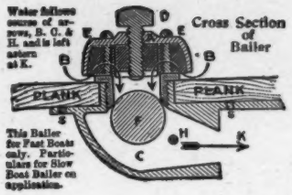
2 B-7 horsepower, two-cylinder, make-and-break or jump spark, 275 pounds.

3 B-11 horsepower, three-cylinder, make-and-break or jump spark, 370 pounds.

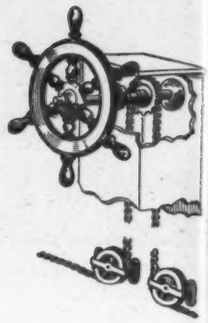
4 B-15 horsepower, four-cylinder, jump spark, 460 pounds.

Seamless cowl ventilator exhibited by A. S. Morss Co.

Skene chock for preventing line from slipping out.



Sectional view of Hitchcock automatic bilge bailer.



Morss chain steerer for motor boats.

C-6 horsepower, one-cylinder, make-and-break or jump spark, 285 pounds.

2 C-12 horsepower, two-cylinder, make-and-break or jump spark, 430 pounds.

3 C-18 horsepower, three-cylinder, jump spark, 575 pounds.

4 C-25 horsepower, four-cylinder, jump spark, 710 pounds.

D-5½ horsepower, one-cylinder, make-and-break or jump spark, 340 pounds.

E-7 horsepower, one-cylinder, make-and-break or jump spark, 500 pounds.

F-2½ horsepower, one-cylinder, make-and-break, 150 pounds.

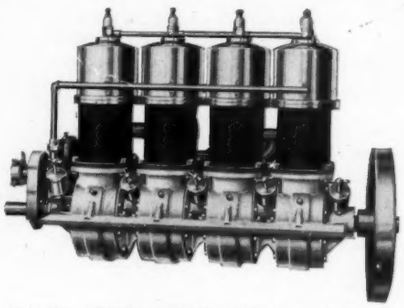
Also, there will be shown a 4-horsepower, four-cycle stationary engine with throttle governor. This engine has the tank piping, etc., incorporated in the base, and a plunger pump is supplied on the engine to keep the carburetor supplied with gasolene.

The new sizes for 1911 will be a double-cylinder model D and a double-cylinder model E engine. The single-cylinder engine of this type found a ready market with the fishermen last year, and it is at their suggestion that two larger sizes have been added. These engines will develop 12 horsepower and 15 horsepower, respectively.

The Jager Exhibit The Charles J. Jager Company, of 281 Franklin Street, Boston, Mass., will be represented with an exhibit of their line of four-cycle engines, which consist of the following sizes:

One six-cylinder, heavy-duty, 60-horsepower engine; one four-cylinder, heavy-duty, 40-horsepower engine; one threecylinder, heavy-duty, 24-horsepower engine; one two-cylinder, heavy-duty, 16-horsepower engine; one six-cylinder, medium-speed, 40-horsepower engine; one four-cylinder, medium-speed, 25-horsepower engine; one three-cylinder, medium-speed, 18-horsepower engine; one two-cylinder, medium-speed, 8-horsepower engine; one four-cylinder, 50-horsepower, high-duty lightweight engine.

All of these engines are equipped with "make-and-break" or jump-spark ignition, and have reverse gears as an integral part of the engine construction. The Jager Company have kept their engines up to a high standard, and the line shows all the latest refinements in detail compatible with high-grade installation.



Elbridge "Featherweight" 4-Cylinder, 40-60-H. P. Motor.

The company will also exhibit one of the two-cylinder, two-cycle, lightweight, high-duty, 7-horsepower marine engines, suitable for yacht tenders and for auxiliary service in sailboats. In addition to these power plants they will also exhibit a direct-connected 5-horsepower electric lighting set.

A New Motor for All Kinds of Service In space No. 61, the Oulton Motor Manufacturing Company, of 311 Atlantic Avenue, Boston, Mass., will have an exhibit of one of their new motors which they have been perfecting for the last few years, and which they are placing on the market for the first time this year.

It is a new type of hydro-carbon motor, and is especially adaptable to either gasolene, kerosene or denatured alcohol. Every stroke of this motor is a power stroke; in other words, it is what is known as a "two-cycle motor." Its simplicity is marked; no valves, cams or springs, the only working parts being piston, connecting rod, crankshaft and balance wheel, thereby eliminating over two-thirds of the working parts. One of the principal features for which the makers strove was a wide range and speed; flexibility and control are shown by the fact that it can be run from 100 to 1,800 revolutions, and back again in the some minute without a kick, skip or backfire. Its clearance of gases and perfect combustion are proven by the fact that at all speeds the exhaust is fireless, stainless, odorless and cool, and that the greatest power is obtained with the motor running at high speed.

By reason of every stroke being a power stroke, and the perfect balance and control of the gases, the vibration is greatly reduced, and by the adoption of new and original ideas the leakage of gas has been eliminated, thereby making it very economical. By a water by-pass device they are enabled to use a detachable head, without the possibility of leakage of water into the combustion chamber, thereby obviating much trouble.

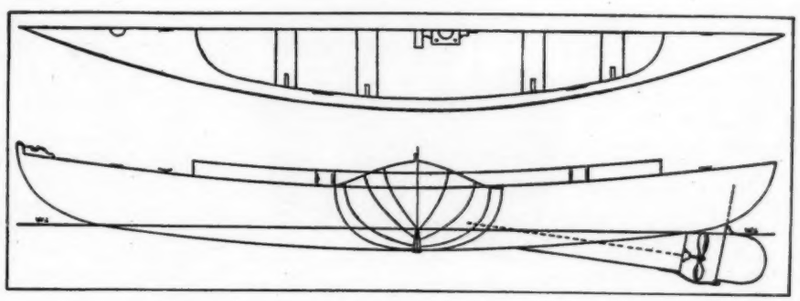
By a new system of water control the flow through the water-jackets of the cylinders is at all times under the control of the operator, thereby avoiding trouble caused by overheating, or lack of power caused by not having the cylinders sufficiently warm.

The lubrication is a very important part in the construction of hydro-carbon motors, and does not, as a rule, receive sufficient attention. Their system is very unique, with only one working part, which gives a positive force-feed to all parts of the motor.

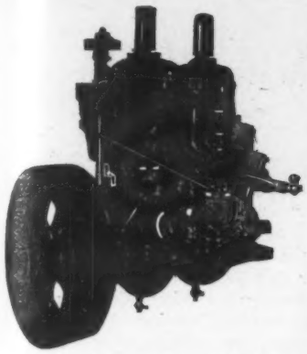
The spark, gas and water control are all installed either on the dashboard or steering wheel. The oil circulation is in sight of the operator. This motor is so designed that every part is easily accessible without interfering with any of the other parts. The operator can at all times reach any of the working parts within five minutes. The makers claim that the Oulton motor is easy to operate, smooth in running, reliable under all conditions; and as it contains few working parts, the cost of maintenance is greatly reduced. The Oulton motor is the result of four years of patient and conscientious labor, in experimenting, developing and perfecting, and is adapted to automobiles, commercial vehicles, marine and stationary work, etc.

An Engine for Hard Service The Stanley Company, of 79 Milk Street, Boston, Mass., will be on hand at the Boston Show with a representative exhibit of their line of motors, ranging from 3 to 15 horsepower. These motors are of the two-port, two-cylinder type. The 3, 5 and 7½ horsepower are built in one-cylinder, while the 6, 7, 10, 14 and 15 motors are built in two cylinders. The double-cylinder uses jump-spark ignition and all other sizes the "make-and-break" type. In design they are adapted for both pleasure and working boats. The three sizes in single-cylinder construction are more especially of the heavy-duty model than the five sizes in double-cylinder, although all of the sizes are strong and compact, with every wearing surface of ample size, with large ports in relatively correct positions. The motors are complete in themselves and require no extras for the purpose of connecting the propeller, the shaft or the gasolene piping and electric wiring.

Spray Hoods for Motor Boats Charles P. McClellan, of Fall River, Mass., will exhibit a line of his spray hoods for motor boats in various designs to suit the needs of different types of boats. These spray hoods are made of the very best material, the frames being of selected white oak, and all fittings and fixtures are of bronze metal. The covers are of 8-ounce Government khaki duck, which is mildew and shrink-proof, with the color an absolutely fast dye. Screws are furnished ready to attach to the boat. The advantages of these hoods are that by day they may be used as an awning or spray shield and at night as a sleeping tent, making a snug little cabin on an open boat. These hoods are strongly built and neatly gotten up, and



Lines of 30-foot Whale-Boat Launch made by the Cape Cod Power Dory Company.



New Model Eagle, 2-Cylinder High-Speed Engine.

have come to be a necessity where an open boat is concerned, or where the cockpit of a cabin boat requires an awning or hood. The hoods are also made after the automobile type for use on fast speed boats and runabouts, with side curtains for use in wet weather.

Toppan Dories and Termaat & Monahan Engines The Toppan Boat Manufacturing Company will exhibit in the Boston Boat Show one of their 27 by 7-foot Offshore cruisers of the Potter design, equipped with one of the latest type 8-horsepower Toppan reversible two-cylinder motors, so placed that it is easy of access and can be started from the inside of the cabin. The engine itself is placed in the cockpit, and is so arranged that it can be handled or worked while at the steering wheel, one person being able to handle it in all kinds of weather. The boat is equipped with a toilet and has many new and novel features for a cruising boat of this size. It has so much available space that it is no wonder that this type has become so popular.

This craft is the same as all other Toppan boats, being very strongly constructed and a fine sea boat. Nothing has been done to cheapen the work to the detriment of strength. This sentence should be strongly emphasized, in view of the fact that the selling price often influences, more or less, the construction and even the safety of the boat.

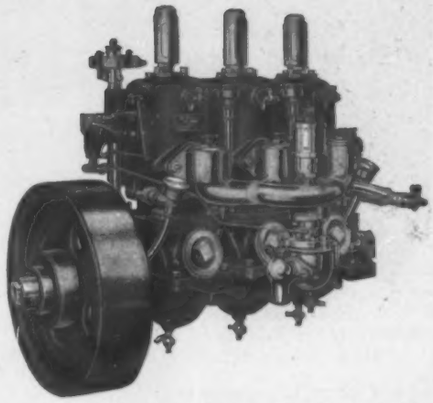
There will also be shown by this company one of the new type 18-foot safety launches with oak finish, brass deck fittings and automobile top, making one of the most desirable and safe family outfits on the market, and one of their smooth-planked dories which are now so popular. This last will be 19 feet long, equipped with 3-horsepower Toppan reversing motor, and will be up to date in every way. In the basement of the hall there will also be one of their 22-foot fishing dories, lapped straked, with the engine housed, making one of the most desirable off-shore cruising dories that can be built, yet at the same time reasonable in price, and one of the Toppan smaller 18-foot boats.

There will also be shown a full line of the Toppan reversible jump-spark motors from 2 to 12-horsepower, and a full line of the famous Termaat & Monahan engines, in both medium-duty and in their lightweight-speed types, made at Oshkosh, Wis., by the Termaat & Monahan Company.

A Waterman for the Motor Boat The Waterman Marine Motor Company, of Detroit, Mich., will exhibit, through their New England distributor, Mr. A. P. Homer, one of their new model marine motors which they will have on the market in 1911. This engine will be known as their model "B," and although they will put them out in quantities this season for the first time, a number of them were distributed last summer, and they have been thoroughly tested in all parts of the country.

The new model is 4 inches bore by 4 inches stroke, with aluminum crank-case and spun copper water-jacket, the cylinders being cast separately. While the Waterman Company puts out the engine in 1, 2 and 4 cylinders, the one they will have on exhibition is the four-cylinder special marine equipment; that is, shaft, propeller, etc., and the yacht type will be equipped with Baldridge reverse gear carried by the engine base and Bosch magneto. With this type the makers give the customer his option of a force-feed lubricator, although they advise small emergency gravity cups on the in-take manifold, to be used only in case of need, the regular oiling being done by placing the lubricating oil directly in the gasolene tank. This they have found to be the best way an engine can receive lubrication in exact proportion to the power developed, and not simply in proportion to the speed. That is, when the engine is running slowly under heavy load with wide open throttle it will get oil in proportion to the power, while with the regular force-feed or gravity-feed systems it would not take in more oil than when the engine is running light with the throttle almost closed and running at the same speed.

The two-cylinder Model-B engine weighs only 144 pounds, including fly-wheel and cast-iron water-jacket exhaust manifold, which may be dispensed with for a speed boat with a saving of nearly 20 pounds. The four-cylinder weighs less than 250 pounds, and develops 24 horsepower at 900 revolutions per minute. This engine is well adapted for aeroplane work, as the omission of the fly-wheel and the water-jacket exhaust manifolds brings the weight under 200 pounds.



Three-Cylinder, 18-Horsepower, High-Speed Eagle Engine.

The Waterman Company are putting out this model as they find there is a great demand for a high-grade, two-cycle engine of light weight and perfect control. They had not intended to send out more than two or three of these to have them thoroughly tested during 1910, but as soon as it was known that they were putting out an engine like their Model K, and in a larger size, they began to receive orders for them. The orders came in simply on the strength and reputation of the small Model K engines.

The Waterman Marine Motor Company have made no attempt to put these engines out at a popular price; their whole endeavor has been to build the best engine of the size and type that could be put out, and price has been a secondary consideration.

In addition to the exhibits described in the foregoing pages will be seen the following:

The Essex Engine Company, of Lynn, Mass., with a complete line of Essex standard and special engines, in sizes from 2½ to 16 horsepower, one and two cylinders.

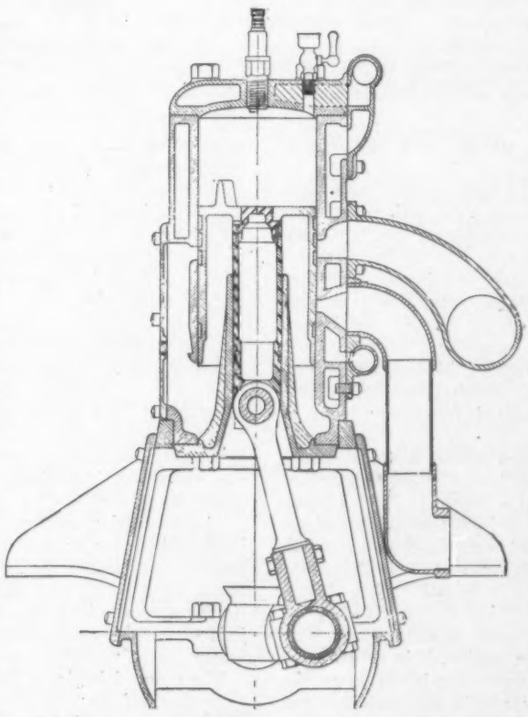
The Sagamore Engine Company, of Lynn, Mass, with an exhibit of marine motors from 3 to 40 horsepower, in single and double-cylinder.

A. P. Homer, of 88 Broad Street, Boston, Mass., with boats, engines and accessories.

Westchester Appliance Company, exhibiting Westchester dry batteries for marine purposes.

W. J. Connell, of Boston, Mass., with a line of carburetors, lamps, magnetos, spark coils and spark plugs, etc.

The Motsinger Device Company, of Pendleton, Ind., with Auto-Sparker, D.-C. Magneto, Charging Switchboard and Faultless Switch.



Sectional Cut of Oulton 2-Cycle Motor, showing compression chamber.

The Burn-Boston Battery Manufacturing Company, of Boston, Mass., with a line of electric batteries for ignition purposes.

The Fairbanks Company, through their Boston agent, a line of Fairbanks gasolene engines, from one to two cylinders, from 1½ to 15 horsepower.

Kershaw-Williams Company, of Boston, Mass., with a complete line of motor dories and skiffs.

Ivor Johnson Sporting Goods Company, motor boat supplies and accessories.

Old Town Canoe Company, of Old Town, Me., canoes.

Palmer Bros., through their Boston agent, marine motors.

Truscott Boat Manufacturing Company, boats and engines.

Atwater-Kent Manufacturing Company, Philadelphia, Pa., a line of spark plugs and ignition equipment appliances.

Dean Manufacturing Company, Newport, Ky., a special exhibit of their famous racing craft Br'er Fox II, which made the sensational run from Cincinnati to New Orleans last year in the remarkable actual running time of 53 hours 25 minutes and 58 seconds, or at the average of 29.08 miles per hour.

Frisbie-Haft Motor Company, of Middletown, Conn., with a full line of marine motors.

Standard Motor Construction Company, Jersey City, N. J., with an exhibit of Standard motors.

D. M. Tuttle Company, Canastota, N. Y., with a line of Tuttle engines.

Of Interest to the Skipper

A Helpful Handbook of Accessories A 40-page book has just been issued by the Michigan Wheel Company, of Grand Rapids, Mich., containing a handsomely illustrated description and price list of the reverse gears, one-way clutches, reversible propellers and solid wheels which have made the Michigan Wheel Co. famous the world over.

The book is considerably more than a price list. It tells the man who wants to know just what kind of a wheel or gear is required for different types of craft and different engine powers. Furthermore, there is illustrated and described in the book a line of motor boat fittings calculated to make every boat owner see how his outfit may be improved for 1911. Among the accessories illustrated are some extremely neat and convenient little fender hooks, a power bilge pump, a gasolene separator, some universal joints, intermediate shaft bearings, and a solid propeller wheel shaft with a sleeve and an inside stuffing-box.

The book is free, and will be sent to any of our readers, postage paid, upon receipt of their request, if they will mention YACHTING when asking for same.

A New Sales Agency Mr. Clayton Von Culin, formerly with the Ferro Machine & Foundry Company, and for the past year manager of the New York office of the Lackawanna Manufacturing Company, and Mr. Wilbur H. Young, formerly general agent for the Lackawanna Manufacturing Company at their New York branch, have organized the Gasolene Engine Equipment Company, and have leased two entire floors at No. 133 Liberty Street, New York. One floor, which is on the street level, and is provided with show windows, is devoted entirely to the exhibition of marine and stationary gas and gasolene engines and equipment, including boat builders' supplies. The other floor is used for the storage of a full line of engine and accessory parts.

Engines for marine and stationary purposes, of both the two and four-cycle types, in heavy duty, slow speed, medium and light weight, medium and high speed, from 2 to 150 horsepower, operating on gas, gasolene, kerosene, alcohol or distillate, are carried in stock. By having in stock such a diversified line of engines the Gasolene Engine Equipment Company will enable the intending purchaser to secure a power plant that is exactly adapted to his particular requirements, whether for marine, stationary, electric lighting, pumping or farm and traction purposes.

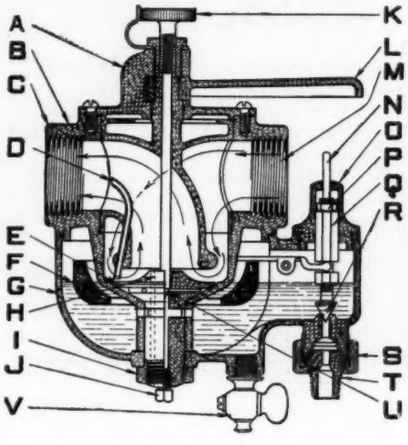
A special department has been organized to furnish inquirers with correct information regarding the size, type, speed, weights, etc., of engines and all kinds of equipment which may be required for either boats or stationary plants.

Arrangements have been completed with the Columbian Brass Foundry, manufacturers of the celebrated Columbian propellers, for opening a New York branch of that company, where at all times a complete stock of propellers will be kept on hand for the convenience of both the public and the trade. Similar arrangements have been completed with the Electric Goods Manufacturing Company for the sale of their well-known "Perfex" ignition specialties.

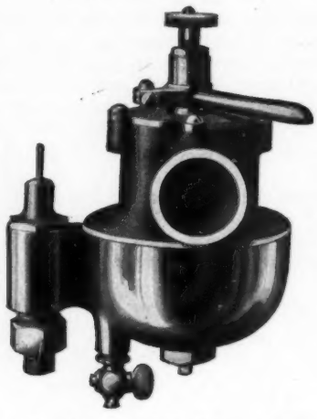
A Carburetor to Increase Power The carburetor being the most important and vital part of an internal-combustion engine, it is natural that every engine user should be interested in the latest development of it and watch closely any changes made in the various types. For this reason they will be interested in knowing that on November 22 papers were issued granting a patent on the Krice Carburetor. The Krice Carburetor Company have been manufacturing these carburetors for some time. During the years of 1908 and 1909 the experiments were carried on and the principle of the Krice Carburetor thoroughly tried out. All the tests were very successful, and Krice Carburetors were immediately manufactured for marketing purposes and patent was applied for. During 1910 a great many of these carburetors were used on stationary and marine engines and automobiles.

One of the distinguishing features of the Krice Carburetor is the method of spraying gasolene into the mixing chamber by means of a long, thin circular opening (known as the annular opening), measuring about 3 inches in circumference and eight-thousandths of an inch in diameter. This particular feature is one of the many covered in the patent. In this method of spraying the gasolene the Krice Carburetor has a very unique principle, as the gasolene, instead of being delivered into the mixing chamber in a solid jet, is delivered through the annular or round spraying device, the outlet of which is about eight to ten-thousandths of an inch wide, and creeps up the side of the walls of the mixing chamber instead of being sprayed. The air in being taken into the carburetor passes through the mixing chamber and finally into the engine in-take; thus in passing through the mixing chamber it comes in contact with the thin film of gasolene, causing practically immediate vaporization. Through this method of carburetion a dry, thin mixture is produced, forming the most efficient gas for combustion.

The Krice Carburetor Company claim that their carburetor will develop 20 per cent increased power on any marine or stationary engine on which it is attached. Fuller information than is given by this short description and illustration will be cheerfully furnished by the Krice Carburetor Company, of Detroit, Mich., upon application.



A sectional view of the Krice Carburetor. E is the annular opening for gasolene feed, through which the gasolene works up the sides of the walls of the mixing chamber.



Exterior view of the Krice annular spray carburetor.

Bretz' New Western Office J. S. Bretz Company have just opened up a complete Western office and sales room at No. 1215 Woodward Avenue, Detroit, Mich. The suite of offices occupies the whole of the second floor of a new two-story brick, stone and plate-glass building that was erected especially for automobile use in the heart of the automobile district. H. J. Porter and J. W. Hertzler, the Western sales representatives of the J. S. Bretz Company, will make their headquarters at the new address, and show a complete line of F. & S. annular ball bearings, German steel balls, U. & H. master magnetos and Bowden wire.

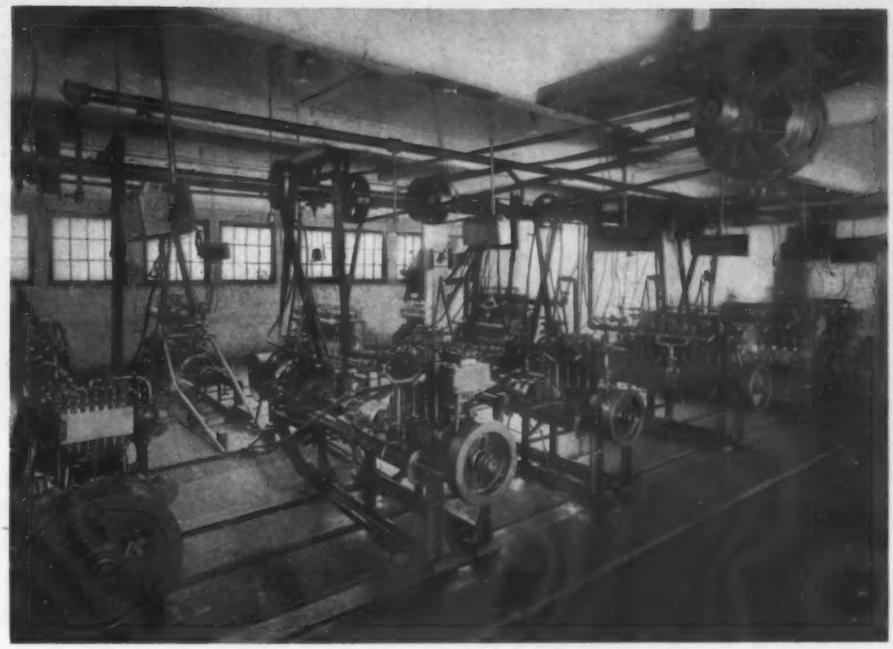
An Up-to-Date Testing Room The Sterling Engine Company, of Buffalo, N. Y., in order to take care of the demands for their engines, have found it necessary to make additions to their already large plant, and among the most important improvements is the testing room, a photograph of which is shown herewith. This testing room has a capacity for testing, under actual running conditions, fifteen engines at one time, and is probably one of the most complete and up-to-date test rooms in existence.

The inspection and test in this department are so complete that it is an impossibility for an engine to get out of this room until it is in absolutely perfect condition. As a matter of fact each engine passes through the hands of a number of different inspectors, each one having his own particular duties. After the engine has been thoroughly inspected and tested it is then sent to the paint shop, where it is given a final inspection before being put in condition to ship.

The many friends of Mr. C. A. Criqui, president of the Sterling Engine Company, of Buffalo, N. Y., will be very glad to know that he is again able to be around. It will be remembered that Mr. Criqui was injured by a motor cycle last August, and after a long confinement he is now able

to get to the plant and look after things in general. Although not entirely recovered, it is expected by the time the New York Motor Boat Show is held that Mr. Criqui will be able to attend it, as well as other shows.

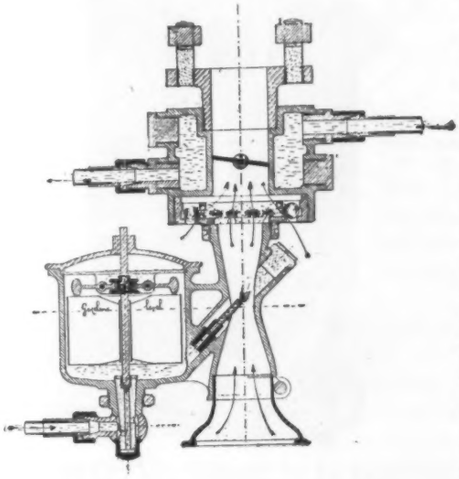
For Preventing Leaky Decks Any one who has suffered the discomforts of a leaky deck while cruising, and has wakened in the night to find water dripping in his face, will appreciate the value of a tight deck. On decks that are kept bright in particular it is difficult to find a substance that will not deteriorate under the action of the successive wettings and drying out to which a boat deck is subjected. If any deck is to be recalked this spring, see to it that a proper seam filler is used, and, to make sure, you had better specify Jeffries Marine Glue. A slight difference in cost between the best and cheapest is nothing as compared with the cost of doing the work over again. Jeffries Marine Glue is the cheapest in the long run, because its peculiar properties are those of flexibility and durability, and though it becomes soft and pliant under heat it still retains its adhesion to timber, fiber, etc., and yet does not stick to the feet. It is much lighter in weight than the lower-priced qualities, and therefore goes farther. The makers claim that it will last from four to six years in a seam, and it has been known to last from ten to twelve. When carefully applied to a dry deck it will never leave the sides of the seam. Having stood the test for over half a century you are trying no experiment when you use this glue. Any further proof that is wanted may be supplied by the fact that it has been used exclusively by the foremost yacht-building concerns of this country.



New Test Room of the Sterling Engine Company.

A New Carburetor in the American Field A carburetor of French design, which is now being manufactured in the United States and sold through the agency of A. Herzig, at 1777 Broadway, New York City, and known as the G. & A. Carburetor (abbreviation for Granville & Arquenbourg—original French manufacturers), is attracting much attention in the carburetor field on account of the many original features which it embodies.

The main characteristics of this carburetor and the points in which it differs from the ones at present on the American market are the shape of the main air inlet, the auxiliary air inlet and the heater.



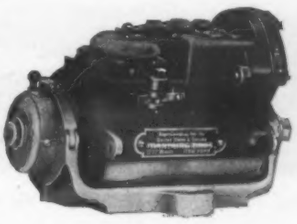
Cross section of G. & A. Automatic Carburetor, showing spray nozzle at narrowest part of Venturi tube.

The main air inlet consists of a Venturi tube, which is a tube made of two cones; one of 7 degrees and one of 30 degrees, fastened together at the narrowest part, where the sprain nozzle is located. At this restricted part the suction is four times as great as it is at the opening, and the gasolene fed to the nozzle is thus always in exact proportion to the air passing through the tube. In this way a constant mixture is always obtained. The supplementary air inlet consists of a brass ring pierced by holes of different diameters, numbering from 12 to 20, according to the size of the carburetor. These are stoppered by Bell bronze balls of different weights and sizes.

The heater is of a new type, so designed that all particles of the gasolene must strike the bronze of the heater, and thus become volatilized. A constant mixture is thus obtained under all conditions at any speed of the motor, without the use of diaphragm valves controlled by springs.

The only recent change which has been made in this carburetor is the substitution of a butterfly throttle for the cumbersome throttle formerly used. In this carburetor no adjustments are needed, and for that reason are not provided. These carburetors are the standard in Europe for both marine and automobile engines, and they were also used by Latham and Blériot when they flew over the English Channel last year.

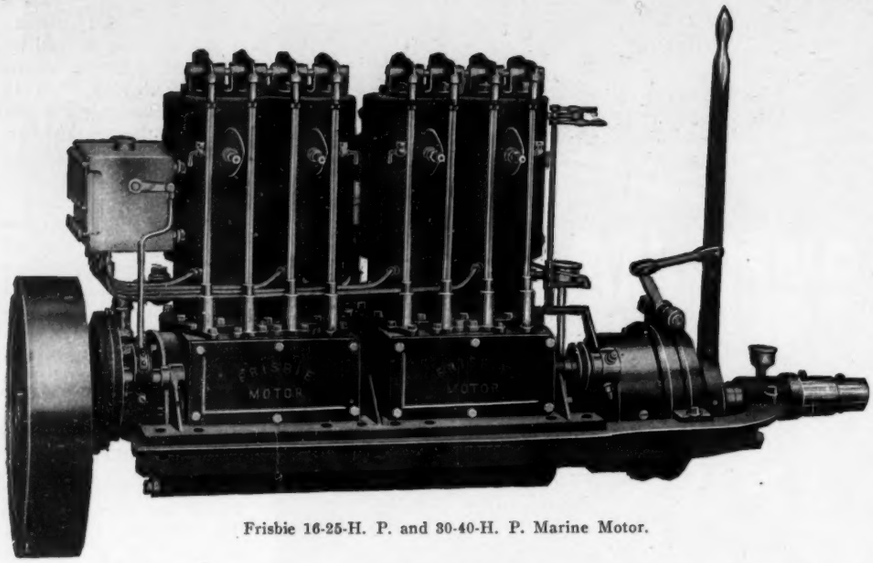
In addition to this new carburetor, Mr. Herzig is the agent for the Mea magneto, which is a high-tension instrument imported from Europe, and is designed to run at engine speed with either a gear or belt drive. The features of this magneto are the bell-shaped magnet, the character of the spark generated in full retard, and the accessibility of the magneto in general. The field magnet is bell shaped, permitting the whole magneto to be shifted, thus advancing and retarding, instead of shifting, the breaker-box. This magneto has a range of 70 degrees of tuning. Its accessibility is shown by the fact that the whole field and armature can be removed from the engine in less than thirty seconds, by simply opening the bearings and removing the magneto. The brushes can be taken out and examined in a few seconds, and the contact breaker examined in about ten seconds. The fact of the magneto having the same intensity at full retard as on full advance allows the motors to be started on the magneto without any danger of kickback. Full description of this magneto will be gladly furnished to the readers of YACHTING by Mr. Herzig upon request.



The Mea High-Tension Magneto.

For Comfort Afloat Having passed through the stage when we considered it a pleasure to spend a day sitting sideways on the hard transom of a motor boat, with a narrow oak coaming imparting the vibration of the boat to the small of the back, we have now come to look for and expect something more comfortable in the way of seating arrangements on all types of power boats. To this end the cockpits of both open and cabin boats are usually left entirely free of built-in seats and designed for the use of easy chairs. The most practical furniture for this purpose that has yet been devised is wicker ware, such as is used for porch purposes in summer cottages and camps. But there are various kinds of wicker chairs; some of them are all right for furnishing a piazza where there is unlimited space at one's disposal, but these would be decidedly out of place in the cockpit of a motor boat of 6 feet beam. The Wicker Craft Company, of Newburgh, has designed a line of wicker furniture especially for boats' use, having in

G. & A. Carburetor ready to attach.



Frisbie 16-25-H. P. and 30-40-H. P. Marine Motor.

mind the size of the average space on a boat in which chairs can be placed. They have armchairs for very narrow cockpits, which are as comfortable as the larger ones made for piazzas; and ones with straight backs, or sloping at various angles. Anyone desiring to furnish his cockpit or deck could not do better than look carefully over the 32-page catalogue of wicker furniture, describing everything from a canoe back-rest to 'thwartship seats, issued by the Wicker Craft Company, of Newburgh, N. Y.

An Efficient and Accessible Motor One of the important points to be considered before purchasing an engine of any description is the location and style of the valves. This is, however, often overlooked by the motor boat enthusiast until he has become experienced enough to appreciate the ins and outs of everyday service; then the advantages of proper valve construction appeal to him strongly.

Gas-engine experts admit that the greatest amount of power is produced with a given fuel consumption when the valves are placed in the cylinder head, directly over the piston, in which case a greater per cent of efficiency is obtained. As an example of this superior construction the Frisbie motor is one of the leaders.

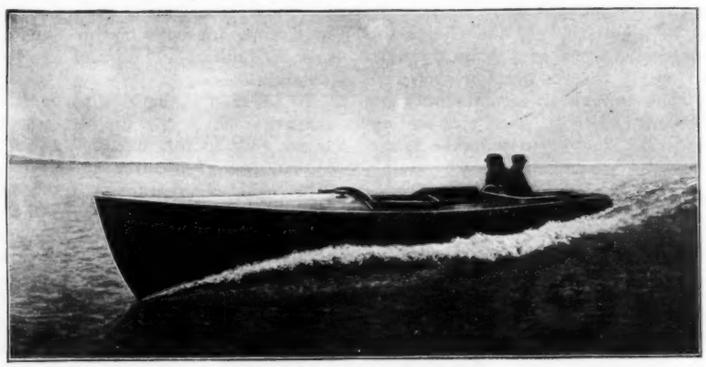
Incidentally, this construction admits of greater simplicity and accessibility to all parts of the engine, of perfect and easy adjustment, and also allows for a very graceful and easy appearance of the motor, making it a thing of beauty.

Frisbie motors are manufactured entirely on four-cycle lines, in single, double, four and six-cylinder units. In the larger sizes cylinders are cast in pairs, the sectional view of one of these being shown herewith. In this, attention is called to the mechanical simplicity, large area of valve opening, the water-jacket space around the expansion chamber and valve cages. This insures proper cooling, with accompanying freedom from pitting and burning of the valve seat and valves. With this arrangement it is possible to remove the valve unit, consisting of valve, valve cage and even valve seat, clean and grind the same and replace in a remarkably short time. No special tools are required for this simple operation, which may be done miles from the repair shop, and which has, in fact, often been accomplished in the shore space of three minutes.

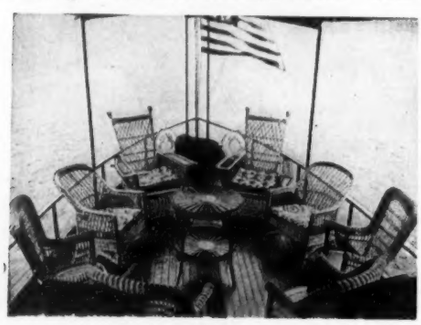
Made on the interchangeable system, all parts are replaceable. The horsepower of these motors is rated low, and ranges from 3-75 horsepower. For medium-duty or high-speed work these engines deserve consideration among the best plants on the market to-day.

The Frisbie motor has held the record of the Connecticut River for a number of years. In the Hartford Yacht Club race from Hartford to Saybrook a record of 2 hours and 21 minutes was made for the distance of 50 miles. Considering the winding course of the river this is a very good record, and has not been equaled since it was made. The Hornet is at present in Trenton, N. J., and last summer had a new six-cylinder Frisbie motor installed in her, increasing her speed about 30 per cent. Undoubtedly she will be heard from the coming season.

The Frisbie Motor Company is located in Middletown, Conn., on the Connecticut River, and it is always glad to receive visits from people interested in marine motors. Their 1911 catalogue is now in the hands of the printer, and will be ready for distribution at a very early date, when they would be pleased to send a copy to those interested on request.



Hornet, winning Hartford-Saybrook Race in Record Time.



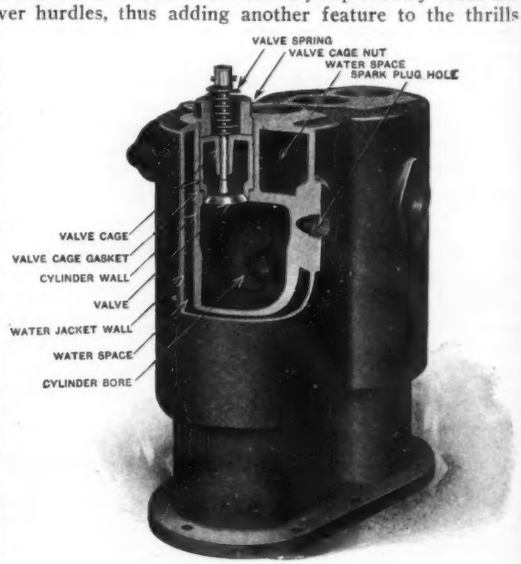
An After-Deck fitted with Wickercraft Furniture.

An Auto-Marine Steering Control The Niagara Gasolene Motor Company, of Buffalo, N. Y., manufacturers of the well-known Niagara motors, have placed an auto-marine steering control on the market with so many good points that it will interest motor boat owners.

The Niagara Steering Control has the spark and gas controls within the wheel—at the finger-ends—making it easily possible for the operator to steer the boat and regulate the controls without changing position. It is a strictly high-grade device, made of solid bronze and brass, highly polished, with the exception of the wheel, the rim of which is solid, laminated mahogany, the spider being of aluminum. This steerer seems to fill a long-felt want among motor boat users.

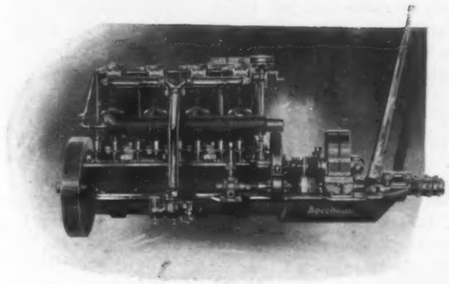
New Emerson Boats and Engines Mr. Harry Harkness has gone to Lower California with the chief signal officer of the United States government, Gen. Allen, to try out the wireless on his Antionette machine, which carries two men and is equipped with an Emerson 100-horsepower aerial motor.

The Emerson Engine Company are building for the president of the Vitograph Company a boat to exceed 45 miles per hour in speed. This boat is provided with planes that are adjustable in such a manner that it can be made to jump entirely from the water, and even over hurdles, thus adding another feature to the thrills of motor boating. It is a 32-foot boat, equipped with 500-horsepower engine, the lightest-weight motor ever constructed. The Emerson Engine Company are also building two motor boats to exceed a speed of 42 miles per hour for the Monaco races. Sidney Breese, of New York, has just installed two 100-horsepower Emerson aero-motors in his hydroplane for Monaco. G. Gringis, Rockledge, Fla., is building a boat with a 100-H. P. Emerson for Palm Beach races.



Sectional view of cylinder casting of Frisbie Motor, showing water jacket valve, cage hole, retaining nut, copper asbestos gasket and cylinder bores.

SPEEDWAY Gasoline Engines



In construction EXCELLENCY is the Watchword

EXCELSIOR the Motto

NO MATERIAL PURCHASED IS TOO GOOD
NO WORKMAN IS TOO EXPERT and
NO IMPROVED DEVICE IS TOO SMALL TO BE UTILIZED IN BUILDING

The Engine is the Heart of the Launch, and Heart disease in Motor Boats is most frequent, insidious and oft-times appalling. In owning a Speedway Engine you fortify yourself with reasonable insurance against this malady and "We Can Prove It."

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POSITIVE ***AUTOMATIC***

CARBURETTOR

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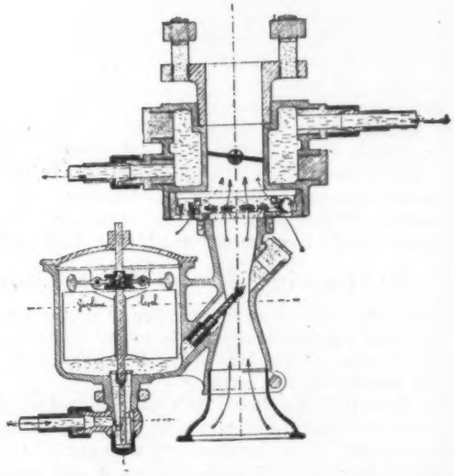

The only carburetor on the market that is absolutely automatic under any and all conditions. No changes in weather, temperature or humidity can ever affect it after it is once properly placed on the manifold.—**No adjusting.**

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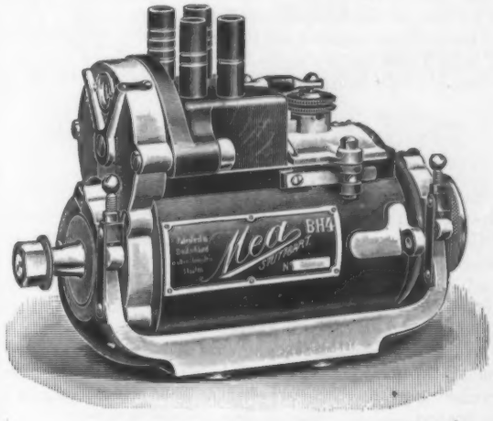
The MEA-MAGNETO



At last a magneto that has the same intensity of spark on full retard as on full advance. Motors can be started on the magneto alone, and no batteries are required. The magneto has a timing range of 70 degrees. It can be removed from the motor and replaced again in 30 seconds. Brushes taken out and examined in 5 seconds.

Sold on a 30-days' trial. Money refunded if not satisfactory.

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A. HERZIG, Agent, 1777 Broadway, New York City

Driftwood from Along Shore

From Lake Erie's Shores

AS nearly as one can judge three weeks before, the annual election of the Buffalo Yacht Club, January 7, will not arouse much excitement among the members. The nominating committee met a week ago at the Iroquois Hotel, and drew up the regular ticket of nominations as follows: Commodore, Edward N. Smith; vice-commodore, R. H. Mason; rear commodore, Edward Oldman; secretary-treasurer, Vernon A. Ellsworth; measurer, Frank D. Wood; fleet surgeon, Dr. E. P. Hussey. Directors, Loren C. Davenport, Eugene C. Roberts, Edward Smith, Carlton H. White. Regatta committee, John H. Carroll, Harry L. Nuese and Frank J. Wilson. So far there has been no talk of an opposing ticket being placed in the field, but what will be done in that line cannot, of course, be told at this time. If there are to be any more nominations they must be filed fifteen days before the election.

Buffalo members say that undoubtedly William E. Scripps, of Detroit, will be elected commodore of the Great Lakes Power Boat League, succeeding Dr. A. E. Hubbard, of Buffalo, when their meeting is held at the Hotel Statler, Buffalo, in March. Who the other officers will be does not seem so plain. The Detroit Motor Boat Club has put in a bid for the meet next year and will probably get it.

That brings us to the endurance contest for cruiser craft for the trophy offered by Commodore Scripps, which will be run under the auspices of the League about the time of the meet. Since the announcement of this test was made other long-distance propositions have come to the fore. One of these is put forth by a Westerner who is building a big boat of which he expects great things. He has offered $100 as the nucleus for a fund to supply a trophy for a cruiser race from Chicago and Buffalo. The Buffalo section of the American Power Boat Association is also considering a long-distance contest, so there are three interesting events in prospect for the summer. But lately a movement has sprung up which aims at a sort of consolidation of interests. It has been suggested that instead of this three-ring circus it would be more satisfactory to have just one big show. In other words, combine all three events into one; namely, the endurance contest under the Great Lakes Power Boat League, which was the first event in the field, and then let every one get behind it and boost for the good of the sport.

Motor boat owners are decidedly pleased that a committee from the Board of Aldermen has reported favorably on the plan for turning the Bird Island Pier into a park and landing place for boats. Not only will the improvement add to the beauty of the river front, which has been neglected, but, what is even more to the point, it is planned to give more room for boathouses, which is very badly needed.

The Buffalo Yacht Club has completed its marine railway, which is looked upon as one of the big improvements of the year. The ways come up a gradual incline and connect at right angles with a railway on the land, by means of which the boats can be brought very near to the club house. Each owner has his own individual "way car." C. B. McCuaig.

The Jersey Beach at Ebb Tide

THE CHELSEA YACHT CLUB

This club has now become more than a possibility; it is to be a pleasant reality of the near future. In one month the hustling officers, under the guidance of Commodore R. R. Albertson, have conceived all necessary ideas for the new club house, and with the able assistance of Jim Lane have already passed upon a set of plans. At the present writing they are awarding the contract for the erection of a beautiful little club house to surpass anything in design and comfort in these waters.

Although of limited membership the club will be a success from the start, with its financial resources. Several large craft of the schooner, yawl and cabin cruiser type will be swinging at anchor off Chelsea in the early part of next season.

VENTNOR YACHT AND MOTOR BOAT CLUB

The second annual dinner of the Ventnor Club to the Governor of New Jersey, his staff, members of the Legislature and the commodores of all the yacht clubs along the coast will be held in the Hotel Shelburne, in Atlantic City, immediately after the inauguration of Governor Wilson, the second week in January. This feast, which was so highly successful last year, is expected to surpass anything of the kind every held in the State. The object of the banquet is to impress upon the Governor and Legislature the necessity of providing for another appropriation with which to push to completion the Inland Waterway in Atlantic County.

No fears are felt for the eventual completion of the waterway, and the club will show by this testimonial their appreciation of the splendid work already done by the State as well, and urge immediate provision to secure an early completion of this inside waterway, which has been the dream of every yachtsman in New Jersey for years.

SEASIDE YACHT CLUB

The trophy room has lately been honored by the addition of a beautiful collection of prizes won by Walter Reed's Vanish during the season of 1910. Harry Andrews raced Vanish through twelve races during the past season, winning eight firsts, two seconds and one third, losing one race out of the twelve on account of engine trouble. No boat of this class in these parts has ever brought home so many important trophies.

In the annual regatta of the Beach Haven, Ventnor, Seaside, Holly Beach, Wildwood, Stone Harbor, Ocean City and Cape May Yacht Clubs this boat carried away the first prizes, and nine beautiful silver cups are in the cases to testify to her splendid performance.

VENICE PARK YACHT CLUB

With the installation of the heating system, electric lights and the arrival of the billiard tables this week, the last of the equipment of the club will have been installed, and all will be in readiness for the big time, beginning December 25. It is expected that several of the summer colony will come down for the occasion, forming a jolly holiday house party. The kitchen has already been tested and has not been found wanting. The sleeping quarters also have been put in commission, and the guests will not pine for any of the comforts of home.

Secretary George Joly has already received a big bunch of acceptances from the commodores of the New Jersey Yacht Club, and from all indications, when the new club opens its doors, it looks as if a royal good time were in store.

LONGPORT YACHT CLUB

All the boys are buzzing about the prospect of a new club house in the very near future. For more than a year hopeful rumors have floated around, but nothing came of them until recently, when the Board of Governors held a meeting for the purpose of considering the advisability of an extension of the present building or the erection of a new one. All indications point toward a new club, and the proposition looks good to us.

There is plenty of room on the present site, and with the steady increase of the Longport summer population, and the consequent swelling of the membership list, a new club house is the only thing. It was very difficult to accommodate the "bunch" last year, and another season, if we don't have more room on shore, fences will have to be built along the docks to keep the ladies from pushing each other overboard on regatta days. Don't let the idea die—everybody pull together and talk it up.

Ralph Harcourt.

Entertainment by the Melrose Yacht Club

The Melrose Yacht Club, whose station is at Barretto Point, Long Island Sound, gave their eighth annual ball at Crotona Casino, 169th Street and Boston Road, on Saturday evening December 10. Practically the membership of the club turned out, and the affair was thoroughly enjoyed by all hands, the floor being crowded with dancers. A supper was served later in the evening. The interest manifested in the social events of the club are equal to those displayed in the summer in regard to racing and cruising events, and speaks well for the growth and future of the club.

The committee in charge of arrangements consisted of William Schmitt, John Lavery, John Schmitt, Joseph Bareuther, Hy. Schmitt and Theodore Golding. The officers of the club are: Frank Schultz, commodore; John F. Doepker, vice commodore; Joseph Bareuther, treasurer; Henry R. Schmitt, financial secretary; William L. Effinger, recording and corresponding secretary; Benjamin Gresson, steward; Frank Friedericks, assistant steward; Fred. Berg, measurer; Henry R. Schmitt, fleet captain.

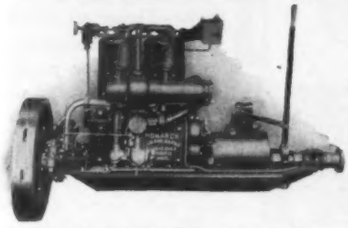
A Growing Motor Boat Club

Such has been the increase in the number of motor boat enthusiasts in Baltimore, Md., and the added interest in motor boating, that a new club was organized October 15 by Mr. William Ganter with forty members, which now has passed the 100 mark.

The Middle Branch Motor Boat Club was selected as the name of the new organization, and that it has met with instant success is expressing it mildly. To secure only those for members who are boatmen in the winter months as well as the warm days of summer, it was decided to start this club at practically the end of the season. Quarters for the new club have been secured on the middle branch of the Patapsco River, west of the foot of Hanover Street, and, as soon as the membership warrants, new buildings will be erected.

The officers of the club are: President, Charles Altvater; treasurer, Jacob Bitzer; corresponding secretary, John Miller; financial secretary, Charles Schuerholz; commodore, William Gantner; vice-commodore, Gustav Behrens, Sr.; rear commodore, William Doell, Jr.; fleet captain, Henry A. Ulrich; quartermaster, Charles J. Wolf; fleet engineer, August W. Behrens, Jr.; measurer, Thomas L. Cardwell; fleet surgeon, Dr. Paul C. E. Hauser, and steward, Paul Gauniel.

BY-PASS

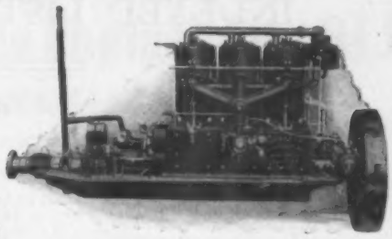


2 Cylinder 6 x 7—16 H. P. at 525 R. P. M.

MONARCHS

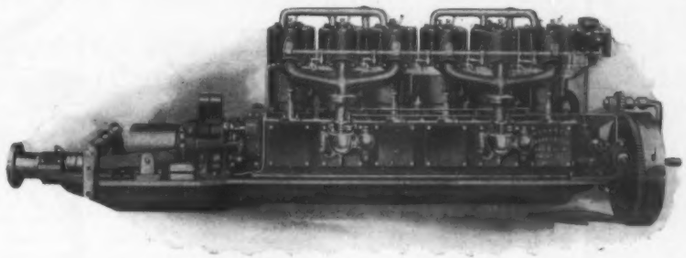
THE FINEST LINE OF HEAVY DUTY ENGINES EVER PRODUCED

THE ONLY ENGINE OPERATING EQUALLY WELL on EITHER GASOLENE or KEROSENE



3-Cylinder 6 x 7—21 H.P. at 525 R. P. M.

The patented by-pass used exclusively on Monarchs is the only device which allows of perfect combustion, when using Kerosene, thus preventing all unpleasant odor in boat or at exhaust.

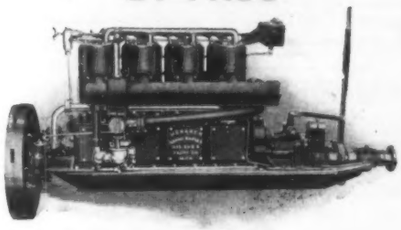


6-Cylinder 6 x 7—42 H. P. at 525 R. P. M.

Note arrangement of Clutch for Pilot House Control and geared down or easy Starting Device.

Monarchs are automatically governed—no racing on neutral, and are equipped with magneto, our own reverse gear and air compressor. Either make and break or jump spark at option of purchaser.

BY-PASS



4-Cylinder 28 H. P. at 525 R. P. M.

These Engines represent only a few of our Models for 1911. Send for handsomely illustrated Catalogue.

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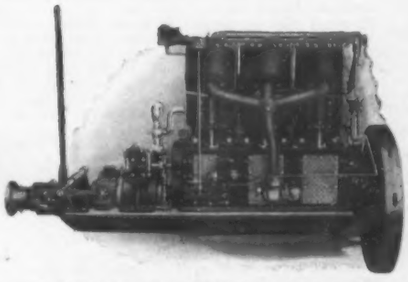
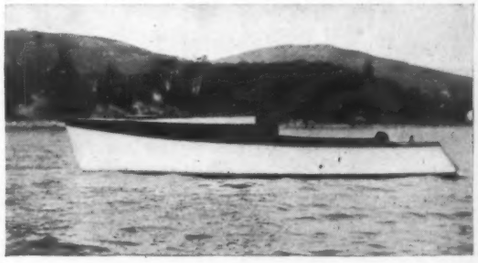


3-Cylinder 10 x 10—60 H. P. at 325 R. P. M.



Camden, Maine, Oct. 11th, 1910.

Scripps Motor Co.,
Detroit, Mich.

Gentlemen:-

I am very much pleased with my 8-10 H.P. motor, purchased of you in the Spring of 1909. I have used it two seasons in all kinds of weather, and have been in some bad places, but my motor has never stopped until I turned the switch. This is the fourth motor I have owned of different makes, and if I should want another tomorrow, I would but a Scripps. For power and economy they are in the lead.

My boat is a cabin cruiser, 26 ft. long, 6 ft. wide, makes 10 miles per hour, name India. I would advise anyone wishing a good motor to buy a Scripps. It saves time and money.

Yours very truly,
W. W. Elms,
Camden,
Maine.

Two More Letters Showing How Scripps Motors "Make Good"

Write For Detailed Information

Scripps Motor Co. 657 Lincoln Ave. Detroit Mich.

Friday Harbor, Wash., Oct. 11,

Scripps Motor Co.,
Detroit, Mich.

Dear Sirs:-

Referring to the 4 cylinder 15-20 H.P. Scripps engine which I purchased of you last June and which I installed in my 28 foot Racine Launch, "Irene", I beg to say that the engine has given first class satisfaction in every way.

It has increased "Irene's" speed from 6 1/2 to 10 miles per hour, but better than that, in my opinion, the engine has proved absolutely reliable.

It has the quietest, smoothest running engine I have ever seen and the system of control is perfect. I have never had the slightest difficulty in making landings and have found that it is practically as flexible as steam.

I am particularly pleased with the oiling system and consider it as good as can be made. All in all, I am satisfied in every way with the engine and have no hesitancy in recommending a Scripps engine to anyone who desires an engine which is first class in every detail

Yours very truly
Gene C. Gould.

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TRIMOUNT
Rotary Blower and Whistle.
A bronze air Compressor
Mechanically perfect
Requires small space in boat
Will last for years.
Whistle - loud, clear, superb carrying quality - pleasant sound - not a nerve shocker
We ask $15.00 up, a little profit to us, very profitable to the man who buys one.
TRIMOUNT
HAND BILGE PUMP
10 gals. per min. at 85 R.P.M.
Nothing to break or wear out. For easy operation, why friend
A CHILD CAN WORK IT!
Every bit of it bronze metal, compact durable, and, oh, so very efficient
You lose if you pass up this pump
The price is $20.00
TRIMOUNT ROTARY POWER CO. MFRS. & PATENTEES
148 PEARL ST., BOSTON, MASS

Among the Power Boats on the Bay

(Continued from page 22.)

agement given to the game during the latter part of the season by the San Francisco, Corinthian, Vallejo and Sacramento Yacht Clubs, means much for the future. Sacramento is especially enthusiastic, and the number of boats that made the 125-mile trip down the beautiful river and through the rough waters of the upper bay to attend the San Francisco Yacht Club regatta was surprising and speaks well for the Capitol City boat owners. At the present time Sacramento is the real center of motor boat enthusiasm in California.

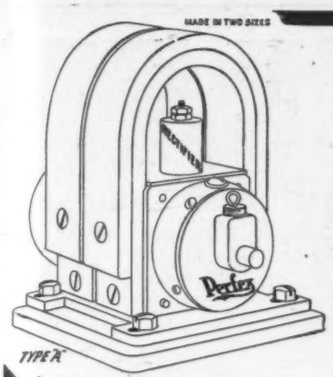
On October 2 the Corinthian Yacht Club held its first annual motor boat carnival over a 7½-mile course, starting in front of its club house.

The first race was between the semi-speed boats Glory and Alsoran, and, true to its name, the latter craft "also ran" through an accident to its engine, and Glory won as it pleased.

The race for cruisers was a walkover for William Letts Oliver's handsome new boat, Bonnie Doon, which is undoubtedly the finest and largest motor boat on San Francisco Bay.

The San Francisco Yacht Club's races were held October 9th, and were the second annual contests for motor boats given by that club. This club is situated at Sausalito, which is but a short distance from the Corinthian club house. It owns the finest club house on the bay, and numbers among its members many enthusiastic motor boat men, one of the most prominent of whom is Frederick A. Robbins, who last year donated the San Francisco Perpetual Challenge Cup for cruisers, the handsomest trophy that has ever been offered in local boating circles.

This contest is over a 14-mile course starting at the San Francisco Yacht Club, running through Raccoon Straights to and around the Southhampton Shoals Lighthouse, past the immigration station on Angel Island, around Alcatraz Island to the finish at the starting line. Four boats participated in the race this year. The defender, Jess, belongs to ex-Commodore I. G. Shaw of the Sacramento Boat Club, and is a new boat of shallow draught equipped with a Campbell engine of 28-horsepower. The challenger, Follie, is a little 28-footer, owned and built by I. H. Cory of the San Francisco Y. C., and with a 27-minute handicap she won by 6 seconds.



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FUNDAMENTALLY DIFFERENT

Perfex Rectified MagnetoS used with "Perfex" Waterproof IgnitioN form the *ONLY* WATER-PROOF Jump-Spark Magneto Ignition in Existence!

"Perfex" untimed Rectified MagnetoS are *Mechanically, Electrically,* and *Fundamentally Different!*

THEY OPERATE IN PLACE OF BATTERIES WITH FOUR OTHER JUMP-SPARK IGNITION SYSTEMS

—and furnish current for small electric lights

To Buy **INEXPENSIVE** *To Use*

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Get Latest 1911 Information—NOW!

Combined Induction Coil and Spark Plug on each Cylinder.

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LAKE AVENUE CANTON, MASS.

HARDWARE FOR WET PLACES

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DURKEE

TWO SOUTH STREET

NEW YORK

Eagle Marine Engines for 1911

OUR REALIZATION

ANNOUNCEMENT

For eleven years we have had in mind conditions such as we are now privileged to announce. That is, a factory so complete both in machinery and equipment that would place us in an independent position fr m all outside considerations.

For eleven years we have built and supplied Marine Engines of such high quality, that regardless of our efforts to meet the demand we have each year been obliged to disappoint our agents on deliveries. During the season of 1909 at which time we placed our new line of engines on the market, we tripled our capacity and now at the end of the 1910 season, we find the same condition of shortage. To-day we are under full headway for 1911 as our agents are demanding "Eagle Engines" and then more "Eagle Engines."

OUR NEW FACTORY

It is with pleasure we announce the opening of our immense new factory with a capital of $1,500,000, at 98 Warren Street, Newark, N. J., fitted with the most modern automatic machinery, (many of which have been constructed from designs of our own engineers, and the like of which cannot be found even in the most up-to-date automobile factories). This will enable us to build engines for marine service of such accuracy and interchangeability such as the Public has never imagined possible.

In acquiring this new home we have installed one of the finest and most complete foundries to be found anywhere, this feature facilitates our work, makes us independent of outside delays, and enables us to maintain a standard in material which we have always desired. We have also installed a complete set of ovens for baking the enamel finish on our engines, which for years has been one of their distinctive marks of elegance.

This new factory is the realization of years of planning. We have dreamed of a factory for the housing of our engine business, such as we now possess. We have planned to use just such wonderful machinery and to utilize our perfect organization in the manufacture and sale of Eagle Engines, and to think this period is now at hand, that our anticipations are now realities, and that these facilities and conditions will enable us to benefit all users of marine engines, we assure you the penning of these lines is an exceptional event in our career.

"EAGLES" ONLY

The public as well as our agents must appreciate the value of our copyright name "Eagle" as applying to marine engines. We have never failed to supply parts for an engine bearing this name even though at times such parts have cost us many times more than the sale price. Our policy is to care for our customers. Eagle engines have never been sold under any other name; from year to year they remain "Eagles" for the reason that our machines are such that we do not fear the man to whom we have once sold an engine. We want our customers to remain our friends, and any demand in reason will keep them so, as far as we are concerned. You are not required to purchase engines under the name "Eagle" this year and a new name the next. They always remain "Eagles" and we are zealous of the name and reputation. Each year we endeavor to advance our engines in the newer and finer details of fittings and construction. This principle enables us to state to-day that we are so far in advance in two-cycle marine construction that it will require a colossal effort to even meet such Quality and Competition as we will offer for 1911.

ABILITY and INTEGRITY

No Institution rises above the individuality and character of its owners, and it is becoming more and more important for a purchaser to know what kind of ability and integrity are back of his engine. It is needless to say that Eagle Engines have for eleven years represented all that is desirable in engines of the marine type especially as regards Quality, Finish, Efficiency and Durability.

For the first time in the history of the marine engine business one is enabled to purchase an engine constructed by the highest class of engineering ability, including material such as has never before been supplied, and an equipment that has set a standard at a competitive price. We are giving you more for your money in the Eagle line of engines and equipment than it is possible to procure elsewhere. While we insist on quality, this does not infer that we aim to waste money in shams. Our engines are just as elegant on the inside to the eye of the finished mechanic as they are to the observing public from the outside. To sum it all up, the Beauty of Eagle Marine Engines is in their simple Elegance, Harmony of proportion, Excellence of Material, and Equipments.

QUALITY IS NOT PATENTABLE

No manufacturer controls it. Style, workmanship, material and finish, however, are matters of *intuition, training, taste* and *experience.* Our aims are high, our facilities for manufacturing of the best, our trained craftsmen are at our command to interpret our wishes relative to the standard we desire to maintain.

EQUIPMENTS

Price of Equipment Depending Upon Outfit Is a Rare Delusion

You should realize that where you are quoted on equipments with variation of price from twelve to forty dollars, depending on what the offer is, that in order to secure what we supply as a regular equipment, it will be safe for you to figure that if you want a salt-water outfit and high-grade equipment you will be charged the long price, and after the long price you will find that you still lack such an equipment as the Eagle Company supplies regularly with each and every engine of their manufacture. We are not only setting a standard on engines but also on equipments, and you should inform yourself particularly as to just what you are getting by being charged extra compared to what we supply as a regular outfit.

CATALOG

Secure a copy of our new catalog, it is free merely for the asking, and really it is worth your time to make the request. You will find a great amount of information that will interest you, and take our word that it is nicely printed and handsomely illustrated. Our Handsome Illustrated Catalog Mailed Free Upon Request.

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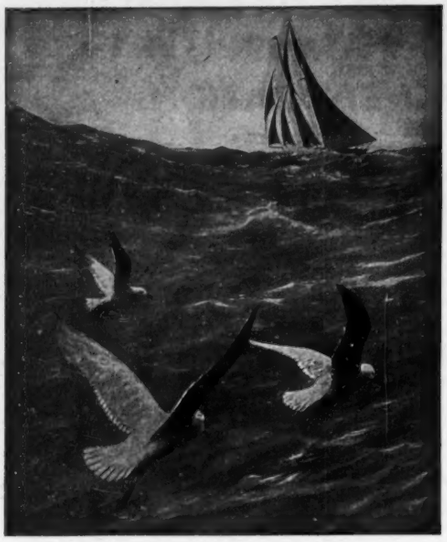

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The Trough of the Sea

O'er the glad waters of the dark blue sea
Our thoughts as boundless and our souls as free
Far as the breezes can bear, the billow's foam
Survey our empire and behold our home.
—Lord Byron.

Size of picture, 12 x 14½, on double art mount.

In green, $1.50. Hand tinted in full color, $3.00.

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The Moon Path

The moon enchants the watery world below
Wakes the still seas, and makes them ebb and flow.
—Nathaniel Lee.

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The sloop-of-war. High-powered engines and hulls of tempered steel have replaced the "oak hearted" sea fighters of an older day, but a few still remain to speak of things that were.

Size of picture, 20 x 25, on double art mount.

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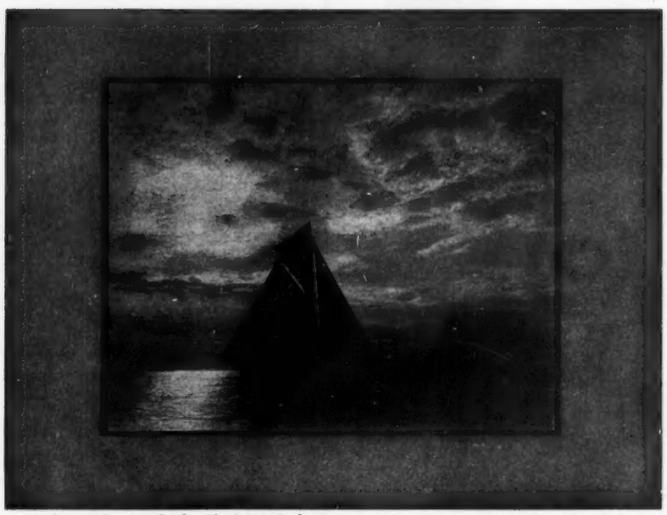

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The Night Patrol

Night after night the life saver treads his lonely tour across the yielding sands with eye turned ever seaward, keeping watch and ward lest the hungry deep engulf those who might be saved.

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The last of a great line:
"Good-bye Romance" the skipper cried
"She vanished with the coal we burn."
—Kipling

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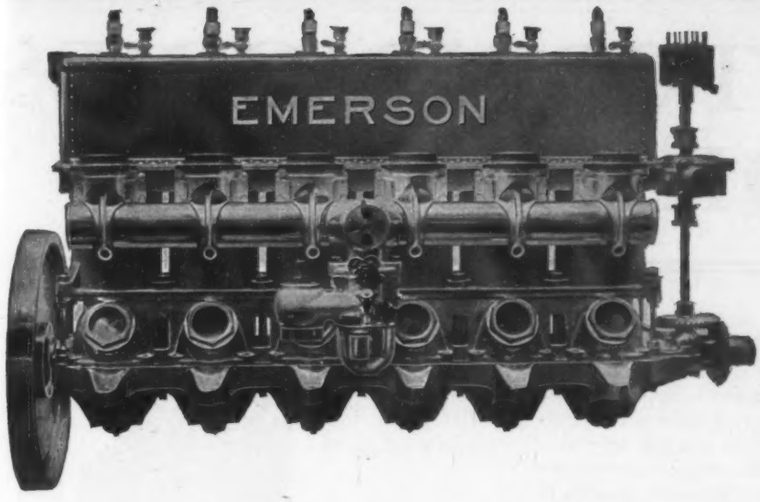

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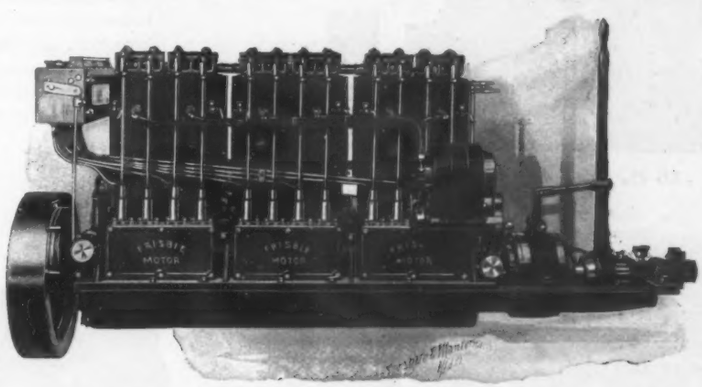

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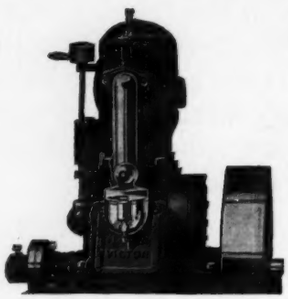
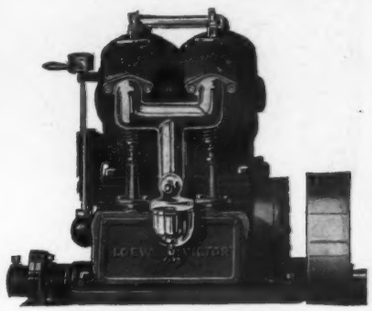
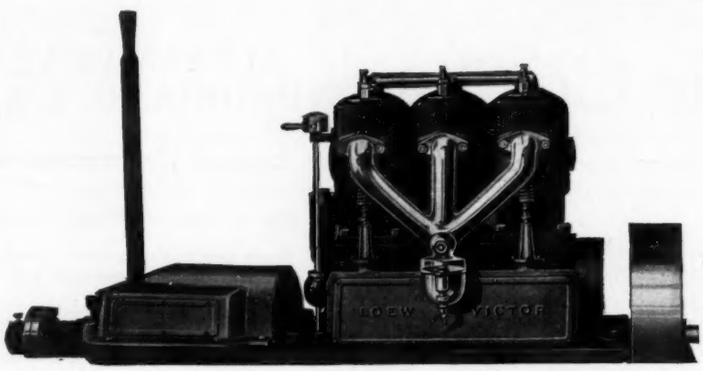


1-Cylinder. 6 H. P.
4¾ x 5½

These engines were designed for the man who appreciates the flexibility, steadiness and consistency he can get only in a four-cycle engine; are wonderfully well balanced, smooth in their operation., furnished with various equipments and have a range of speed of from 150 to 700 R. P. M.



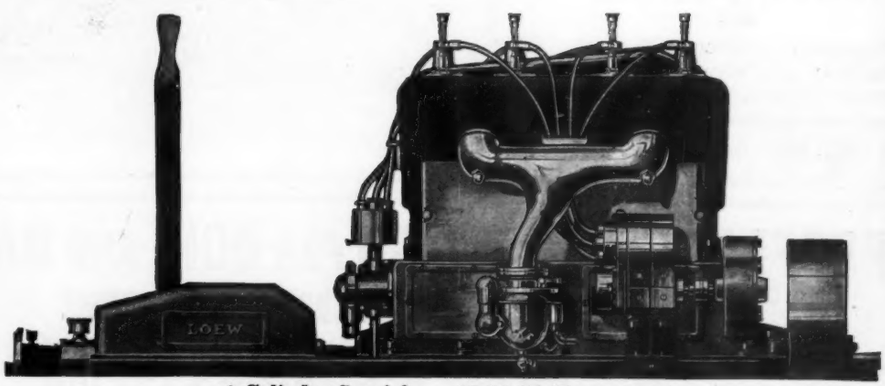
2-Cylinder. 12 H. P.
4¾ x 5½



3-Cylinder. 18 H. P. 4¾ x 5½

This 3-cylinder engine makes an ideal rig for pleasure boats, cruisers and work boats where a moderate speed engine is desired. It is a thoroughly balanced, smooth, clean running machine, furnished with reverse gear as part of its regular equipment; ignition systems are optional, however; is made in the iron crank case only; develops its full rated horse power at 600 R. P. M. and has a speed range of 150 to 700 R. P. M.

This "Loew Victor Special" is designed particularly for high class runabouts; is a light weight high speed machine with range of 150 to 1200 R. P. M.; valves entirely housed in and is positively the most quiet machine on the market. For high class runabouts and pleasure boats this engine is without an equal on the market. It is furnished with two systems of ignition; reverse gear, air pump and complete equipment and is much lighter in weight than our standard models.



4-Cylinder Special. 15-30 H. P. 4 x 5

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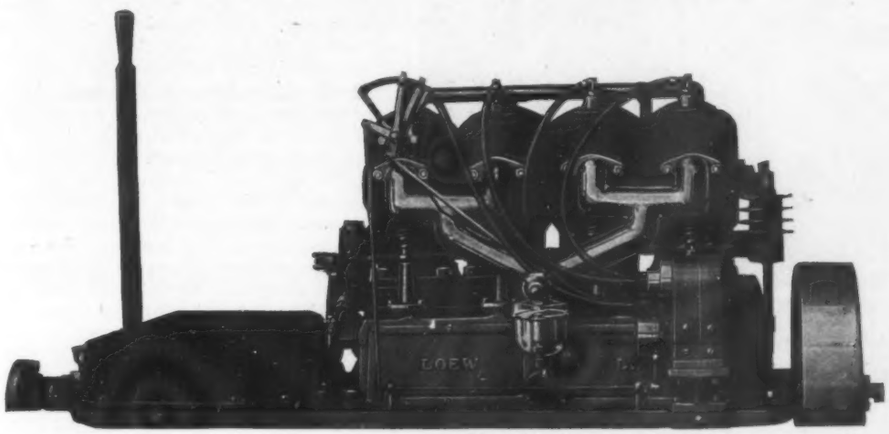
SIZES FROM 6 TO 60 H. P.

EACH size built in quantities sufficiently large to warrant the right price. We want you to see our Catalog covering specifications of each one of these engines and compare with what you have considered the best engine on the market.

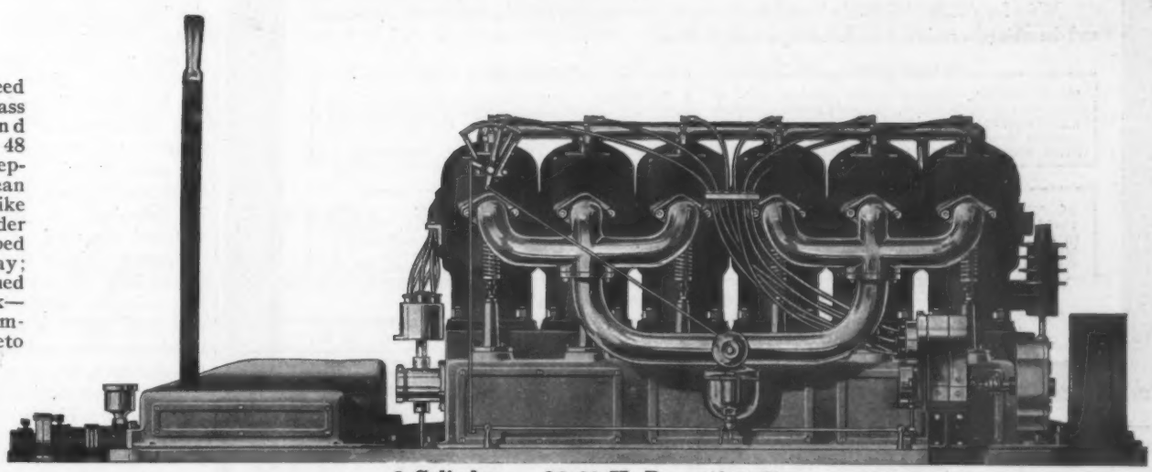
Placing your order with the plant that has facilities for shipping when promised will insure your getting the engine when you want it and not when the factory may have time to deliver it.



The most popular engine of this size on the market, having been built by us for two years and its success is well known.

4-Cylinder. 24-40 H. P. 4¼ x 5½

For high power, speed boat work, high class fast runabouts and cruisers up to 45 or 48 feet, this is an exceptionally smooth, clean and powerful rig. Like both the 4-cylinder engines it is equipped complete in every way; everything is furnished for the price we ask—reverse gear, air compressor and magneto with dual ignition.



6-Cylinder. 36-60 H. P. 4¼ x 5½

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10, 12, 18, 24, 30, 50, 80 and 120 H. P.

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N. Y. YACHT, LAUNCH AND ENGINE CO.
Morris Heights New York City

The Lady Maud, Schooner Yacht

(Continued from page 35.)

men hanging upon the davits in a heavy boat made a dangerous weight for those iron fixtures to sustain, and I own I held my breath as we were lowered. The yacht rolled so heavily that at moments her lee rail was flush with the water, and by bringing the boat to the gangway we should not only have risked staving her, but some of us must have broken our legs or necks in getting into her. Yachtsmen, however, are nearly always good boatmen. We were lowered handsomely, though carefully, the boat touched the water, the hooks flew open, and the fall-blocks rushed past our noses, and, in an instant, we were swept up and away from the side of the schooner, which swung heavily toward us. "Give way!" I bawled; the oars flashed, and there we were heading dead for the stern of the wreck.

Our boat was like a whaleman's, sharp at both ends, and with a good spring. She was a kind of life-boat, too, fitted with wooden, tubular, air-tight casings. She topped the seas like a cork, and yet at the first start the height and volume of the waves made me forget the wreck. I could think of nothing but our situation. At one moment we were in a hollow, in a dead calm, with the foam of the summit of the mountain of water behind us blowing like a flight of white-breasted sea-birds high over our heads; the next, we were on the top of the huge surge, the boat end on, the bowman right over my head, and a chasm behind us that was like looking down a precipice.

However, with a strong effort of will, I drew my mind away from all this, and fixed my attention on the wreck, where I beheld the poor creatures engaged in unlashing themselves, whilst one of them, grasping the woman, was crawling along, and shoving her as he went to the extremity of the deck-house, where a short ladder would enable them to reach the taffrail. Happily the wreck lay so low in the water that it would be nothing of a jump from her into the boat. I sung out to the man who pulled the bow oar to make ready to catch the woman, and at the same time I told the other fellows to lay upon their oars, as the boat had way enough, and stand by to back water when we got under the stern, so that we should not shoot past too rapidly.

Never was nicer steering wanted than now; for if I directed the boat too near the stern, there was the chance of a sea lifting us under her counter, and smashing us into staves; whilst, on the other hand, if I gave the bark too wide a berth, the woman would never be able to reach us by jumping. I pulled myself together, and watched the send of the boat on the seas. The woman stood on the taffrail, waiting for us, grasped by the man, who crouched down behind her, with his hands locked in her dress. Every now and again a column of water ran up the bark's quarter, and smothered them. Calculating the distance as accurately as I could, I headed the boat so as to hit the water about five feet from the taffrail. The wind and the waves rushed us along. When about twenty feet distant I shouted to the men to bury their oars and stop our way somewhat. This was done, and then we were under the vessel's stern.

"Jump"! I shouted.

The woman, dashing back her hair, made a spring, with her arms outstretched. The bowman caught her, and the boat trembled as her body fell into his arms. In a moment we had swept past the vessel, but the woman was safe in the bottom of the boat.

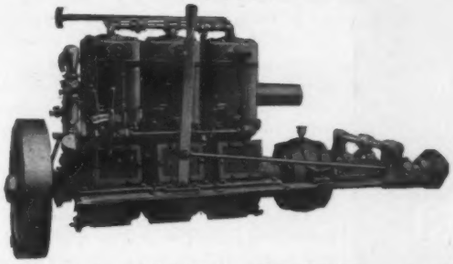
It was now necessary to row to windward in order to drop down again past the vessel's stern. It was tedious and perilous work, but there was no other way of rescuing the men. We should have been stove alongside the groaning and squelching hull, or chucked right on to her.

KNOX 1911

3-Cylinder, 20 H. P., Latest Design

NOW READY FOR PROMPT SHIPMENT

Designed for the Cruising Launch and the Commercial Boat



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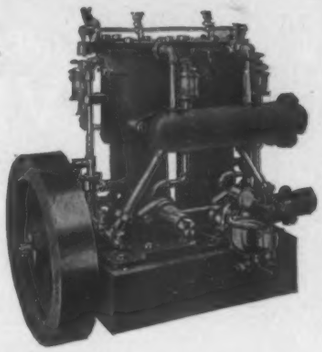

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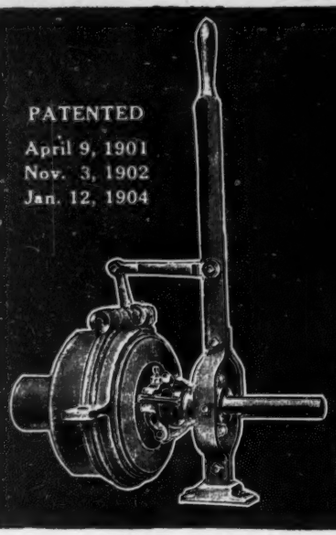

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Something that your friends will admire.
Something that will be *safe* and *comfortable* in rough weather, and
Something that can be sold at a fair price, when you are through with her,
Let ME figure on her.
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After rowing a certain distance, I put the boat's head round again for the wreck, and as we drifted close alongside the stern, we maintained our position there by means of backing water long enough to enable two of the three men to drop among us. Another struggle to windward, and another rowing past the wreck, enabled us to get the third man; and with our miserable freight lying in a silent heap in the bottom of the boat, we made for the schooner that had gone away to leeward, and lay hove to, waiting for us.

But only half our errand was accomplished, and the worst part remained. We had saved the unhappy people, but how were we to put them and ourselves aboard the yacht? Every time we were spun upon top of a sea I saw her plunging and rolling under her reefed foresail, dipping her bows so deep that two-thirds of her rudder came out of water, and heeling over to leeward until it seemed that another foot of inclination would lay bare her keel; and then down we would plump into a hollow, where there was nothing to be seen but the water toppling in mountains above us, and the sky, which we looked up as though from the bottom of a well. There was only one plan to adopt, and when we were close to the schooner it entered my head. All those aboard the yacht were intently watching us, and in order that they should hear me, I steered as close to the stern of the schooner as I dared and shouted at the top of my voice for them to reeve a whip at the fore-yard-arm, and sway us aboard, as that would be our only chance of reaching the deck; and I also bawled to them to heave us a line, which I protest none of them seemed to think of doing. Old Purchase appeared quite dazed, and stared at us like a fool, and we should have been swept away to leeward by the wind and sea like smoke if the fellow who held the wheel had not let go of it and swung a coil of rope at us, the end of which was cleverly caught by the bowman; and presently we were riding at about ten feet distance from the vessel, our weather oars being kept overboard to hold the boat clear of the side.

In a few minutes a whip was rove at the fore-yard-arm, with a guy, leading over the bulwark rail, to steady it. "A bowline on the bite," as it is called, was made at the end of it, and the man on the yard overhauled the whip until the bowline came to our hands. The woman was raised, and the bowline slipped over her, and watching our chance, I shouted to the people aboard the schooner to sway away. The poor creature shrieked as she was swept out of the boat into the air, and never shall I forget her appearance as she swung aloft a few moments, with her gown rattling upon the wind like a flag, and her hair streaming out, and her arms tossing wildly. I recollected Miss Tuke saying that she hoped we would meet with adventures, and I wondered what she would think of this as an incident. It was like seeing a person hanged. I believe the woman had been unconscious to the moment of the men lifting her up to pass the bowline over her shoulders, and no wonder the poor soul kept screaming, if, as I suppose, she only recovered her sensibility to find herself hanging over the foaming water at a height of sixteen or eighteen feet.

But the guy was manned, and she was carefully drawn on board; and very quickly the bowline was again overhauled into the boat, and one of the shipwrecked men fitted into it, and sent aloft.

The relation of this business is easy enough, but the acting in it was a tremendous experience. First, we had the utmost difficulty to keep the boat from swinging away from or sheering against the yacht's side. We had all to crouch low in her, and, as the seas passed under her, she would lean over and keep us breathless. One moment she would be hovering on the summit of a sea that gave us a clear view of the foaming waters beyond the yacht's decks, and the next the

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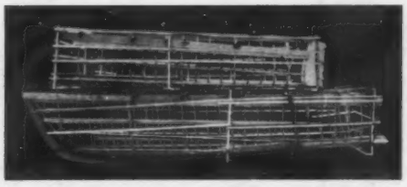

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yacht had vanished, and nothing was visible but the wall of green water that sparkled and hissed and roared between her and us. On the other hand, the rolling of the yacht's masts tautened and slackened the bowline so wildly that it was a real agony to wait for and mark the moment when to sway away. I myself narrowly missed an ugly ducking, not to mention a broken limb; for, all the shipwrecked men having been got aboard, Tripshore insisted on my going next, whereupon the bowline was caught with plenty of slack, and tossed over my shoulders. I gave the order myself to hoist up, and whether from flurry or worry chose the wrong moment, i. e., when the boat was at the bottom of a sea instead of being on the top of it, the result of which was I found myself traveling into the air with the boat and the sea in full chase of me, and coming much faster than I was going. Fortunately a swing of the yacht cleared me of the boat, which, had she struck my legs, must have broken them; the boiling water rose to within half a dozen inches of my feet, and then subsided, leaving me swinging over a huge roaring hollow. However, before I could completely realize my position, they had swayed me over the bulwarks, and with a hearty thrill of delight I once more felt the solid deck under my feet.

(To be continued.)

Making an Eye Splice

(Continued from page 30.)

wire is put into the eye. The serving is then put on till the splice is covered. Riding turns then bring the wire back to the point of the beginning. Then the ends are twisted together and the twist hammered in.

In serving with marlin it was thought that it would be water proof, but, unfortunately, water will get in at the ends through the scores of the rope. Once in, there is no chance for it to get out and the splice becomes rusted. With a wire serving, water runs freely through and the wires dry out easily. Another point in favor of wire serving is that it is more durable, as well as considerably stronger.

A job of this kind has the advantage of looking all right, after the serving is on, whether the splice is neatly or poorly made, and if a sufficient number of tucks have been made and the ends of the strands turned back and hammered down, it will hold all that the rope will bear without pulling out.

In attempting to handle wire rope, the beginner should only try the flexible kinds, such as "tiller rope," or "flexible running rope." The stiff ropes are practically too hard for the beginner, even in the small sizes.

There are a great number of styles in wire ropes. One with very little experience will come across 5-strand, 6-strand and 8-strand wire rope. Sometimes each strand will have a core of hemp, as well as the center of the rope, and there are ropes that have wire cores and no hemp at all.

A New Port For "The Dinghy"

Our little friend *The Dinghy,* formerly published by Harold W. Browne, in the interest of his brokerage business, will hereafter sail in charge of Browne & McNeillie, from their anchorage, No. 78 Broad Street, New York City. This little paper has been published for some six months, and the issue No. 6, the January number, contains much of interest to the boat owner or prospective buyer. It also comments favorably on the power of good, straight advertising. We wish it a prosperous voyage.

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